CAMPBELL-HILL

Develops New Frozen Food Case

(Concluded from Page 2, Column 5)

equipment, conceived without regard for tradition or precedent. We tried to forget some twelve or fifteen years of refrigeration and refrigerator experience and use it only as a reference to guide us.

"We found that the production of a successful freezer display case was not only a case manufacturing and designing problem, but was a dual problem. The Campbell-Hill Freezer of today, in its present tested and approved form, represents a combination of case, low side coils, automatic controls and expansion valve built as one complete integral unit.

"A few of the eight outstanding requirements, and our method of meeting them, follow:

"1st. Temperature.—Temperature is comparatively easy to attain in almost any case if sufficient equipment is supplied.

"2nd. Circulation.—By adopting the principle of cooling by conductivity, we have almost completely eliminated circulation in the Campbell-Hill freezer. We experience no 'burning.' By conductive cooling we are enabled to pack 100 pounds of frozen meat to the lineal foot in the service (lower) compartment. In tests made over a six-weeks' period we maintained ten degrees below (85% relative humidity, 95 degree rooms) keeping the product in perfect condition.

"3rd. Defrosting.—Defrosting is accomplished mechanically. There are no air circulating coils—all surfaces are flat and smooth and frost accumulations are easily and quickly removed without interrupting the automatic operation of the equipment or causing temperature increases.

"4th. The display section is truly a display section. Although it is readily accessible, it is not used for service. Here again refrigeration is secured by conductivity. The Monel metal display pan upon which the produce to be displayed rests attains a temperature of 10 to 12 degrees below. This pan is a primary refrigerating surface and anything placed upon it becomes secondary, or extended surface. Thus meat, which is 92% water, becomes a transmitter of heat when placed upon the pan, and by conductivity is kept in perfect condition without circulation.

"5th. Rapid Service.—The lower service compartment is readily accessible through top rear hinged doors. The doors are so placed on an angle that access is easy without crouching or stooping. All corners are easily reachable. These top doors, when opened, do not allow the cold to spill out, and what is just as important, they allow very little moisture-laden warm air to enter. The presence of warm air in a sub-freezing case causes excessive frost accumulation, and also causes package wrappers to freeze together.

"Between the door sills and the bottom of the upper section, we have built a door vestibule which is completely lined with Bakelite. This vestibule further guards against the entrance of warm air. The Bakelite lining of these door vestibules form cold breakers which prevent the transmission of cold to the outer surfaces of the case.

"6th. Cooling Coils.—The cooling coils are embedded in stone, in the service compartment walls. The stone is highly heat conductive, absorbing heat units before they enter the air in the compartment proper. The cooling coils for the display section are soldered to the under side of the display pan.

"7th. Construction.—The very best material has been used in all assemblies. The frame is made of 2-inch welded angles for both upper and lower sections. The exterior is of porcelain with Bakelite trim in blue, green and black.

"8th. Control.—The control is an American Radiator Mercoid, bulb type built into the end of the case, at the apex, permanently mounted, although readily serviced. All wiring to the case, including light wires, are concealed in channels beneath the porcelain.

"9th. Expansion Valve—American Radiator. Standard equipment."

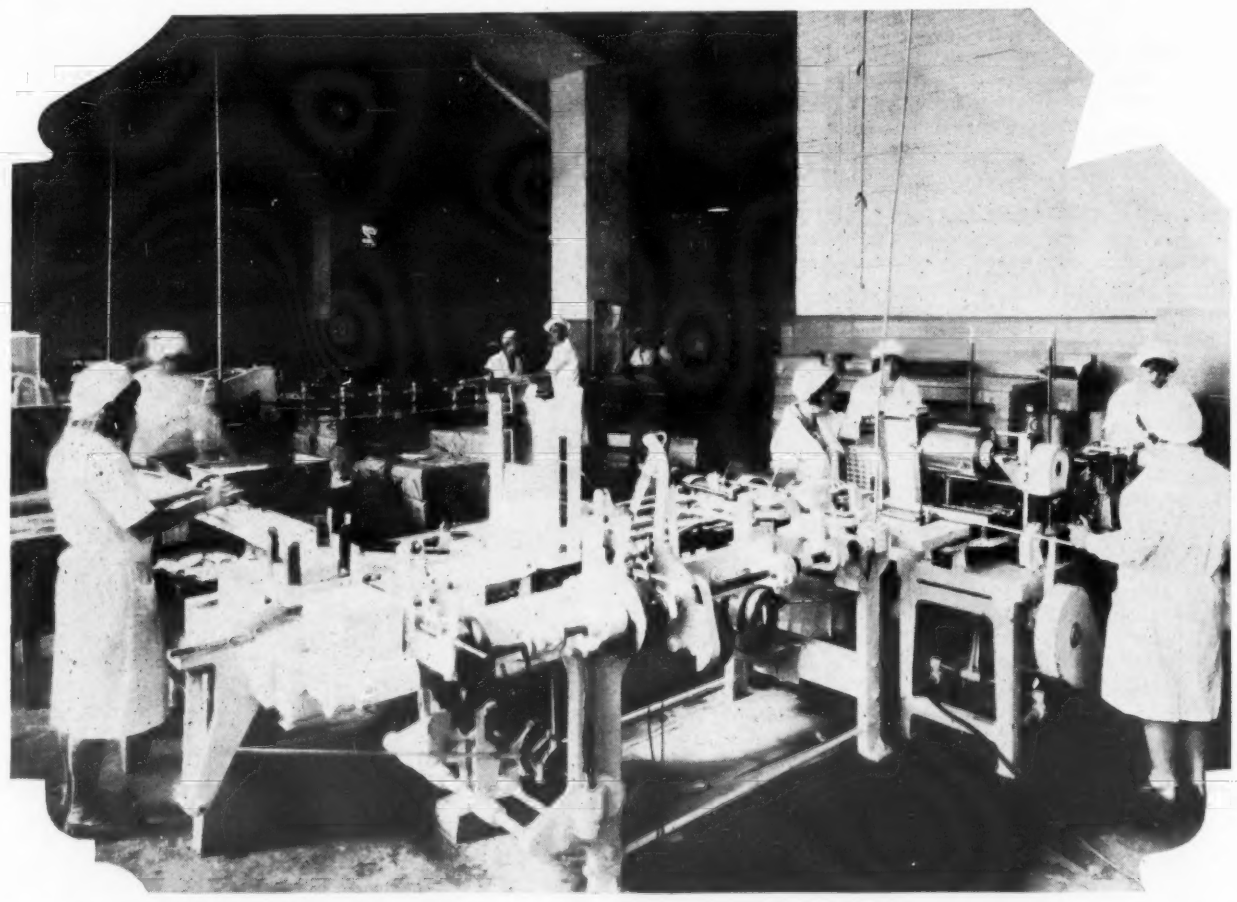
Syracuse to Try Fish Steaks

The steaks, after being cut and shaped, moving on an endless belt. In background a girl pushes them with a spade-like instrument into the moving platforms, which convey them into the freezing chamber.

(Concluded from Page 1, Column 5)

A carefully planned campaign has been worked out by the Atlantic Coast Fisheries Corporation and the J. Walter Thompson Company, which is handling the advertising and various phases of the sales promotion. Hitherto quick-frozen fish have achieved their greatest popularity at points much farther from the seacoast than Syracuse, and the progress made there in the next few weeks will be of great importance to the whole industry.

In the last few years, the Atlantic Coast Fisheries have done much pioneer work in the quick-freezing of fish, and the launching of a new product as part of a test campaign is in line with the progressive policies which have characterized the organization in the past. Further details in regard to the Syracuse campaign will be printed in the October 24 issue of the Refrigerated Food section. Final arrangements for the distribution of the steaks through various outlets in Syracuse will be announced later.



After being hard chilled the steaks are inspected and the n are packaged by machinery. They are then wrapped and sealed in cellophane.

EDUCATION

Needed on Quick Freezing

(Concluded from Page 1, Column 1)

sembling boiled beef. So much liquid runs out of the meat when the heat is applied that the juicy quality and rich flavor that distinguish a good steak become lost. I have had this point brought to my attention by persons that have tried these meats.

"Another drawback connected with the standard cuts of meats is that individual customers cannot get the thicknesses they desire. We have quite a number of customers that demand steaks cut two or two-and-a-half inches thick. Others will take nothing but minute steaks. The only way to satisfy such customers is to cut the meat ourselves, as then we can give them exactly the cut they prefer.

"We have been asked by a packer's representative to put in frozen meats, but we have had no such request from customers and so we have not given it consideration."

At the large market of the Mohican Co. in Bridge St. the head of the meat department expressed opposition and lack of interest respecting the new development.

Such interviews enforce the conclusion that much work must be done to extend the knowledge of principles underlying the quick-frozen foods campaign before it can have convincing effect in molding opinion among the working representatives of the meat trade.

CUTTING COSTS WITH WATER COOLERS

Kansas City, Mo.—H. G. Frazier, manager of the water cooler department for Glueck & Co. here, recently installed ten General Electric water coolers in the New York Life Building. Models DP3 were used.

After careful consideration, the management found that the cost of ice and the labor attendant upon handling it as formerly used would pay for the entire installation in two years. The added comfort and convenience afforded by electric refrigeration was also a deciding factor.

REFRIGERATOR GOES TO NEW BRITAIN SCHOOL

New Britain, Conn.—Newton-Parsons Company, 39 Arch Street, representing General Electric refrigerators, has installed a G. E. S-100 model in the kitchen of the Walnut Hills School. Harry L. Parsons is manager and J. H. Merritt is sales supervisor for the dealership, which is a branch of the Hartford concern of the same name.

RURAL PROGRAM GETS THE FARMER'S ORDER

Atlanta, Ga.—The rural electrification program of the Georgia Power Company is resulting in the opening up of a new market for electric refrigeration. Recently, the Augusta branch of the power company installed two General Electric milk cooling units for dairymen as a direct result of the operation of rural lines, and more units are expected to be installed shortly.

CARTER MILLS PURCHASE G. E. WATER COOLERS

Barnesville, Ga.—The William Carter Mills, manufacturers of underwear, have installed four General Electric water coolers. Installation was made by the Jonesboro office of the Georgia Power Company.

McCRAY BRANCH MOVES

San Francisco, Calif.—McCray Refrigerator Sales Corporation has moved from 765 Mission Street to larger quarters at 933 Mission Street, near Fifth Street. A recent large order, soon to be finished, was the refrigeration work for the new three-story unit of the County Hospital at Beresford, Redwood City, Calif.

A few months ago the Electrolux organization in Buenos Aires installed two Electrolux refrigerators in the Capitol building for the use of the Senate. Whether or not they kept the senators cool enough to escape the excitement of the recent revolution is not known at the time of going to press.

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PETALUMA POLLY ANN PROPRIETOR FAVORS FRIGIDAIRE

Petaluma, Calif.—Sylvester Nielsen, proprietor of the Polly Ann Bakery, 121 Kentucky Street, Petaluma, Calif., reports the addition of a complete and up-to-date delicatessen department, equipped with Frigidaire electric refrigeration, which includes all the display cases in that department.

BIG CABINET FOR INN

Bridgeport, Conn.—Tucker Machine Company, 565 Fairfield Avenue, Kelvinator distributor, has installed a 40 cu. ft. Seeger special cabinet with F-10 Kelvinator compressor and X5-90 coils in Lake Candlewood Inn, near Danbury, for Keith Joyce, proprietor. Arthur Tucker, president, handled the installation.

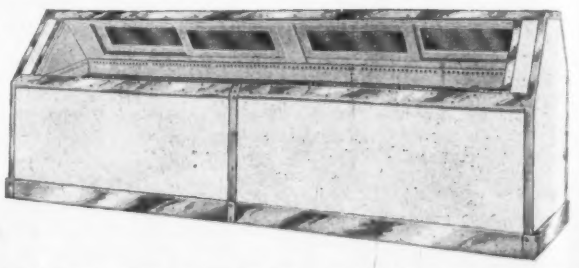
RESTAURANT EQUIPPED

Baltimore, Md.—Fleishman & Son, of Philadelphia, Pa., manufacturers of electrically refrigerated soda fountains, have installed a large unit in the new Kruger Restaurant.

Commercial Refrigerator Equipment

For All Purposes

STOCK or SPECIAL BUILT



BANTA REFRIGERATOR COMPANY
CLEARFIELD, PENNSYLVANIA

In Three Parts—Part 1

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

ISSUED EVERY TWO WEEKS
VOL. 5, NO. 2, SERIAL NO. 104

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FIFTEEN CENTS PER COPY
TWO DOLLARS PER YEAR

CALIFORNIA COMPANY PLAYS NO FAVORITES IN SELLING SERVICE

Takes Care of All Makes and Types of Refrigerators

Los Angeles, Calif.—An independent service organization which stands ready and willing to service all sorts and conditions of refrigerators at almost any hour of the day or night, is flourishing here. Refrigeration Service, Incorporated, began its career on August 25, 1928, with, as L. P. Roth, one of the executives puts it, "four employees, a few service parts, and an abundance of faith in the future."

That abundance of faith seems to have been justified because the corporation now has a staff of seventeen, consisting of eight service men, five shop men, one stockroom man and three office employees. Its activities also have been extended to the carrying of refrigeration supplies, a branch of the business that is continually increasing.

The extent of the company's work is indicated by a list of some of the various makes of refrigerators which have been serviced by its men in the last two years. It covers almost the entire industry:

Absopure, Bedell, Baker, Champion, Cercold, Copeland, Economice, Economy, Electrice, Electrolux, Electro-Kold, Frigidaire, Frigidzone, Holbrook, Jack Frost, Ice Berg, Ice-O-Matic, Kelvinator, Kulair, Lipman, Norge, Parker, Polaris, Surecold, Servel, Trupar, Western, York, Zeroaire, Zerozone.

Approximately 3,500 refrigerator owners are on the books at present, and seven or eight new names are added daily. The wholesale accounts number about 500.

In order to take care of so many different makes of refrigerators, the men have specialized, although there are a couple of men who can handle any sort of refrigerator. The volume of business is sufficient to keep the specialists busy working on the refrigerators with which they are familiar, but now and then it becomes a little difficult to have on hand exactly the sort of man needed for a particular job. It generally proves possible, however, to get him to the scene of action before the customer becomes unduly perturbed.

The eight service men constitute both the day and night crews, all of them working during the day, and two being subject to call at night. The night shift is changed every week. As it is not profitable as yet to keep the offices open twenty-four hours a day, the night telephone service is handled by an extension telephone to a hotel not far from the office, where there is a man on duty at all times. Service calls received in this way are relayed to the two men who happen to be on the night shift at the time.

This night service is not profitable

(Concluded on Page 10, Column 4)

BRYANT ADDING MANY RADIO DEALERS

New York, N. Y.—Bryant Electric Refrigerator Corporation of New York has recently opened new offices and showrooms at 329 Fourth Avenue. It has contracted to sell the entire output of the Bryant Electric Refrigerator Mfg. Co. of New Milford, Pa.

The New York organization, of which Henry Goldman is president, has already appointed dealers in the metropolitan district and plans to appoint distributors in different key cities within the next three months.

Mr. Goldman was formerly connected with the Freshman and other radio companies and is making many dealer appointments in the radio field. The Bryant line will be exhibited at the Radio Show to be held at Madison Square Gardens, Sept. 22-27.

FRIGIDAIRE IN ALASKA

Seattle, Wash.—Widening its distribution in the northwest area, the Frigidaire Sales Corporation at Seattle has extended dealer coverage throughout Alaska, with a number of dealers chosen in the key cities of the terrritory. Alaska dealers appointed to serve both the growing household and commercial fields include W. P. Johnson at Juneau, the capital; William Gilcher, in the large city of Fairbanks; the Smith Radio & Electric Company at Ketchikan; Harry O'Neill at Cordova; the Anchorage Commercial Co. at Anchorage; the Seward Machine Co. at Seward; and the Fryer Machine Works at Petersburg.

REFRIGERATED CANVASS

Chicago, Ill.—Dave Bloom, Copeland salesman, is wondering whether luck, skill or hard work contributes most to success. The other day he was complaining that business was bad and that he couldn't find any new prospects. His boss tore a leaf out of the telephone book, folded it up, handed it to Mr. Bloom, and said, "Here are a bunch of real live prospects for you."

Dutifully expressing his thanks, Mr. Bloom unfolded the page, picked a name at random and called up. To his utter amazement, the man who answered at the other end of the line proved to be looking for fifty refrigerators for an apartment house. Mr. Bloom made an appointment at once.

The Pink Section

REFRIGERATOR and oil burner go hand in hand through the pages of the Buyers' Guide section, which is part of this issue of Electric Refrigeration News. Printed as usual on pink paper, the Buyers' Guide points out the success which has attended the efforts of dealers who are handling both refrigerators and oil burners. It is a natural combination that possesses a host of advantages.

The Buyers' Guide section of the October 8th issue will be devoted to the refrigerator-radio hookup that is constantly increasing in popularity among dealers in both products.

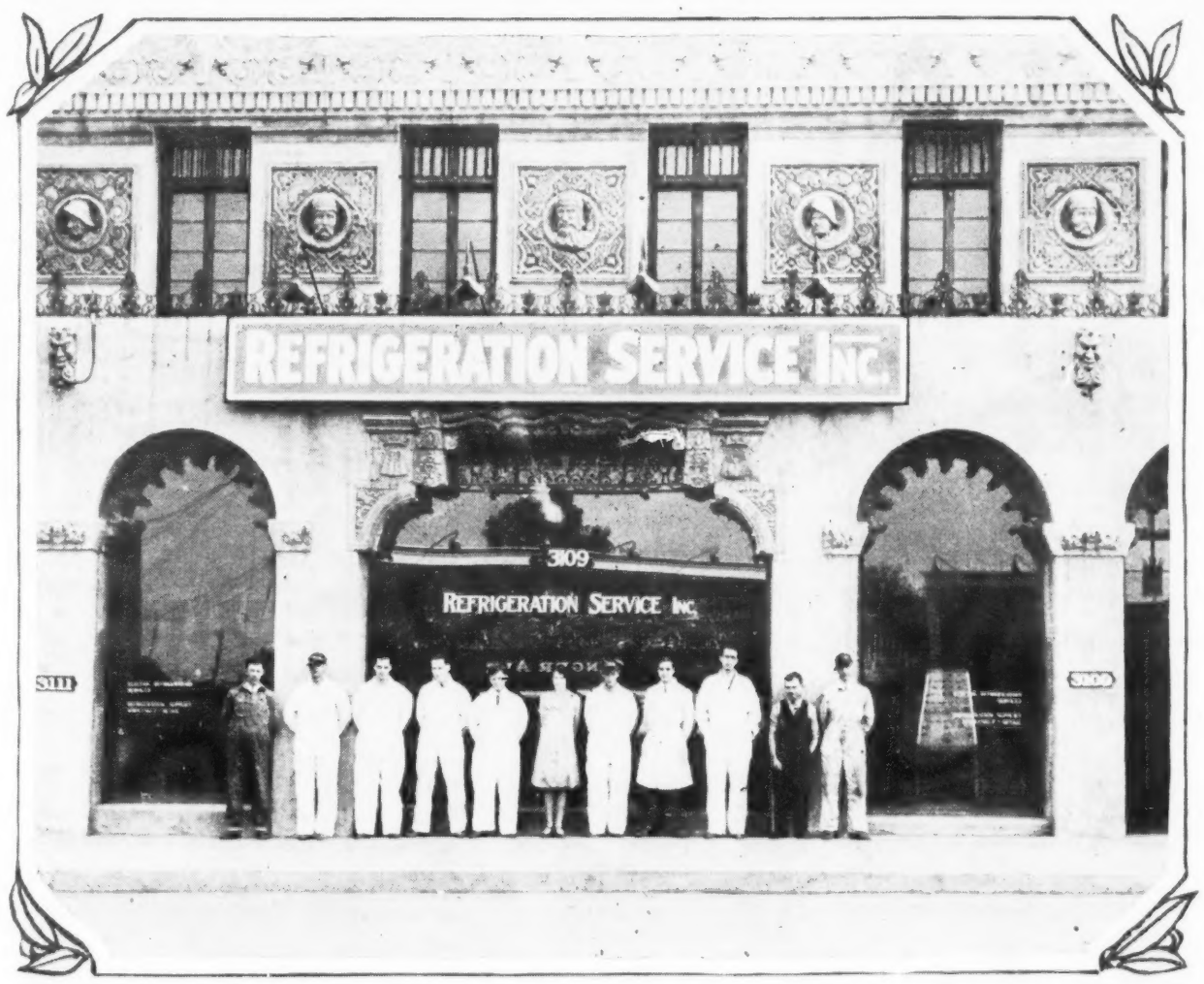
MAJESTIC PRODUCTION

Chicago, Ill.—According to the latest announcements, the Majestic Utilities Company is now turning out Majestic refrigerators at the rate of 1,000 per day. For some time refrigerators have been shown by distributors in certain cities, and models are now on view at the Radio Show in New York.

A Majestic radio announcement made on the evening of September 21, stated that the new refrigerator was being displayed at the New York Show and also would be exhibited at the forthcoming Chicago Radio Show. They also will be seen at radio shows in other cities.

Majestic distributors are extending invitations to dealers to come in and inspect the refrigerators.

Any Make at Any Hour



Some of the staff of Refrigeration Service, Inc., in front of the offices at 3109 Beverly Boulevard, Los Angeles.

PATENT ON LARKIN COIL GRANTED AT WASHINGTON

Atlanta, Ga.—Announcement is made by the Larkin-Warren Refrigerating Corporation, of this city, that a patent has been issued to Lester U. Larkin, its vice-president, by the U. S. Patent Office, which covers the Larkin coil which has achieved such widespread popularity. This patent was issued on September 16, 1930, and is No. 1,776,235.

More than a year ago ELECTRIC REFRIGERATION NEWS carried the first announcement of Larkin coils, at which time the Pierson-Larkin Refrigerating Corporation, predecessor of the Larkin-Warren Refrigerating Corporation, built a factory for the production of a full line of these special coils. From the beginning a line of more than forty sizes was made for flooded type applications, but in the continued development of the coil, production was principally switched to a line of Larkin coils for dry expansion application, which line now receives the bulk of the demand.

From the beginning Larkin coils met with wide interest throughout the trade because of the many unusual claims of the manufacturer, such as the elimination of hitherto difficult problems of dehydration and defrosting, plus the fact that it was claimed that these coils would insure operating economy and the elimination of extensive servicing. Lester U. Larkin, vice-president of the Larkin-Warren Refrigerating Corporation, inventor of these coils, interested manufacturers of electric refrigeration equipment for commercial use to such an extent that elaborate tests were made by these manufacturers to convince them of the fullness of the claims made by Mr. Larkin for his coils.

The result has been that Larkin 100% vertical surface, aluminum plate coils have been adopted as standard factory equipment by a number of leading manufacturers in the field, among whom are Absopure, Brunswick-Kroeschell, Copeland, Williams Ice-O-Matic, Kulair, Merchant & Evans, Servel, Potter, Trupar, Universal, Wayne, Zerozone and others, including Jack Frost, manufactured in Toronto, Canada.

The patent is broad in its protective covering, embracing more than 30 points or claims allowed by the United States Patent Office, among which are substantially the following:

"Wherein the aggregate area of the fins of the unit is substantially equal to the aggregate area of the bounding walls of the refrigerating chamber, and is the broad concept of the one hundred per cent fin surface which results in the absence of frost forming on the coils.

"The cross fin coil with aluminum fins, each fin being penetrated by the parallel pipe sections at a scientifically determined spacing, insuring the greatest efficiency with the minimum area of the fin as applied either to the flooded type or the dry type system.

"The arrangement of the cross fin coil

(Concluded on Page 4, Column 5)

PITY THE POOR SUPERVISOR

Pittsburgh, Pa.—Salesmen, dealers, retail outlets, wholesale contact men and retail supervisors of the Ochiltree Electric Co., General Electric refrigerator distributors here, are entered in a contest, the prizes of which will be free trips to Schenectady, N. Y., and to Cleveland, O. Each man of the sales force has received a quota, which he is expected to fill by December 31, 1930. The trip is scheduled to start January 13 next, with a day at the Schenectady factories and a day at the headquarters of the electric refrigeration department, General Electric Company, Cleveland.

In order to impress the prize upon retail supervisors, R. W. Evans, sales promotion manager for the Ochiltree Company, sent them special delivery letters so timed that they had to get out of bed in the morning to receive them.

SERVICEMEN ARE FLOCKING TO NATIONAL ASSOCIATION

Buffalo, N. Y.—Servicemen in various parts of the country have responded to the announcement made in the September 10 issue of ELECTRIC REFRIGERATION NEWS, that the servicemen of this city had taken the preliminary steps in the formation of a nation-wide service men's organization. A large number of applications have been received by Milton Boneburg, president of the newly-organized National Society of Refrigeration Service Engineers, and a letter with an application blank is being sent out to all servicemen who manifest an interest in the society.

In order to put the society on a firm basis as soon as possible, and to make its purposes clear to the industry, a constitution has been adopted which begins with the following preamble:

"This society shall not interfere in any way between its members and their employers. Recognizing the identity of interests between employer and employees, and not countenancing any project or enterprise that will interfere with perfect harmony between them. It shall not be used for political or religious purposes. Its meetings shall be devoted to the business of the society, and at all times preference shall be given to the education of its members in mechanical refrigeration."

Some of the other provisions of the constitution of the society, which will be of interest to prospective members, are:

OBJECT

The object of this Society shall be to further the education and elevation of its members in the art and science of refrigeration engineering.

The principal means toward this end shall be by the holding of meetings for the reading and discussion of appropriate papers and for social intercourse.

(Concluded on Page 8, Column 3)

NEW REFRIGERATORS SEEK PUBLIC FAVOR IN LOW PRICE FIELD

Apex and Dayton are Latest To Make Their Bid

Cleveland, Ohio, Sept. 10—The Apex Electrical Manufacturing Company of Cleveland is going into the electric refrigeration field, with a popular priced box, according to a statement just made by C. G. Frantz, president of the company. The manufacture and sale of the new refrigerator will be handled by a separate electric refrigeration division of the present company.

The mechanical unit of the new refrigerator is the result of a great many years of work by H. J. Walker, who enjoys a national reputation as an engineer and designer and is known as the man who made the Walker motors for the Chandler, Paige, Hupmobile and Cleveland automobiles. Mr. Walker also played an important part in the production of Liberty airplane motors during the World War.

Mr. Walker, with the assistance of his son, Norman, has developed, in addition to a remarkably simple and highly efficient refrigerating unit, an all-metal seal for the compressor shaft instead of the conventional packing. This seal, which is one of the most important features of the box, is designed to prevent leakage and make it possible to build a reliable and efficient box at a popular price.

About a year ago, after four years of experimenting, Mr. Walker organized a company to produce a popular priced electric refrigerator, and it is this company, known as The Lorain Automatic Iceer Co., which has now joined forces with The Apex Electrical Manufacturing Company to build and market the new refrigerator.

A number of distributors have already contracted for refrigerators, according to officials of the company and, in addition to these outlets, regular Apex dealers will, in many localities, also become a part of the selling organization.

The new refrigerator, which is priced under $150.00, is built in two sizes, one for household use and one for apartment house installation. Both boxes are furnished in enamel on steel or in porcelain on steel.

"A careful survey of the market shows conclusively that there is a tremendous demand for a popular priced electric refrigerator, provided it is reliable, and Mr. Walker has established the quality through years of careful development and experimentation," says C. G. Frantz. "We are geared up to go into a substantial production program immediately and will step up our present facilities just as rapidly as possible. The demand for this new box from apartment house owners alone, in the big cities, is tremendous, and actual orders from householders show conclusively that many people know the advantages and convenience of electric refrigeration but have hitherto been unable to buy on account of the price situation.

"We will devote a considerable portion of our production facilities to this new refrigerator, with the knowledge that we have an exceptionally fine and highly efficient piece of merchandise that we can offer at surprisingly low prices."

Both H. J. Walker and Norman Walker have been retained as consulting engineers of the new electrical refrigeration division of the Apex Company. James M. Michael will head the sales activities as general sales manager.

ENTER THE DAYTON

Dayton, Ohio—Another electric refrigeration manufacturing organization will make its home here. The Dayton Refrigeration Company has been incorporated, to produce the new Dayton electric refrigerator for home use. Incorporators of the new company are Sidney L. Brown, president of the General Tool and Engineering Company of this city; Ruth L. Brown and Clarence B. Yount, well-known experimental engineer in electric refrigeration.

Two models of the Dayton electric refrigerator are being placed on the market. Model 5-A, a one-door type especially designed and built for the average family, is priced at $129.00. Model 6-A, a two-door refrigerator, for large families, is to be sold for $150.00.

Mr. Brown, for some years prominent in tool industry circles of the Middle West, became interested in the electric refrigeration field about a year ago, when his company conducted a series of

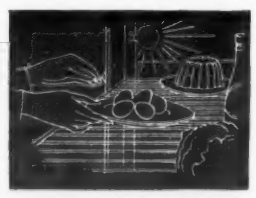
(Concluded on Page 4, Column 3)

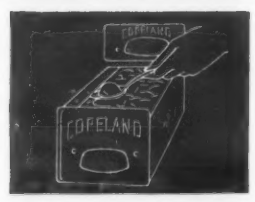
1930 A RECORD COPELAND YEAR

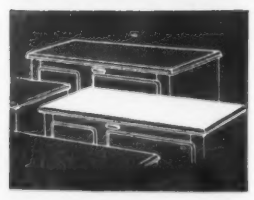
In January Copeland introduced a new line of Electric Refrigeration Units far superior in quality and refinements to any Copeland products of the past.

Such advanced features as the inbuilt Water Chiller, seven-speed Coldial, Locked Mechanism Compartment, interior electric lights, double depth dessert trays, and colored tops—coupled with moderate prices—provided a new and greater appeal to all buyers of household electric refrigeration.

With the finer production facilities of a new and enlarged factory, with an extensive line—embracing not only self-contained domestic units but separate units for present ice boxes, multiple installations for apartments, water coolers for offices and commercial installations—we predicted that 1930 would be the greatest year in Copeland's successful history. And we determined to back our prediction with aggressive, business-like cooperation with distributors and dealers.







Now, after eight months, we are happy to announce that our prophecy has been fulfilled in gratifying measure. Business so far this year has topped the same period of last year by a percentage well above the average increase for the industry as a whole.

Indications are that business will be proportionately good during the fall. Nineteen-thirty will be a record Copeland year—and 1931 plans, soon to be announced, provide for still greater sales expansion.

Merchants interested in sharing Copeland's success are invited to get in touch with us.

COPELAND SALES COMPANY
332 Cass Avenue, Mount Clemens, Mich.

COPELAND
DEPENDABLE • ELECTRIC • REFRIGERATION

JACKSONS TO DISTRIBUTE KELVINATORS IN TEXAS

Dallas, Tex.—Jackson Brothers, formerly of Corsicana, Texas, have been appointed Kelvinator distributors for 25 North Texas counties, with headquarters in Dallas and East Texas branch office in Corsicana. Formal opening of the firm's new plant at 3302 Knox Street, Dallas, was held Tuesday, September 8. The firm that is to distribute Kelvinators in one of the richest trade territories of Texas is composed of R. J. Jackson and S. J. Jackson, of Corsicana, Texas, and Ben D. Jackson, of Beaumont, Texas. Ben D. Jackson is retail dealer for the Kelvinator products in Beaumont. Albert H. Berry, Jr., is sales director for the new firm and manager in charge of the Dallas branch.

Albert H. Berry, Jr.

A new sales room and modern repair shops have been provided for the North Texas Kelvinator distributors. Retail sales for Dallas and wholesale distribution for North Texas will be handled from the Knox Street Dallas headquarters.

A force of mechanics, trained in Kelvinator mechanisms, and an experienced force of salesmen have been assembled by Jackson Brothers at their Dallas store. More than fifty Kelvinator dealers in the North Texas territory will work under the sales direction of Mr. Berry. The Jackson Brothers' territory extends from Red River to Waco, Texas, and includes much of East Texas territory and goes as far west as Ft. Worth. The new firm reports business good over the entire territory.

LANDER SUCCEEDS LEE IN MERIDEN BRANCH

Meriden, Conn.—Commercial business is maintaining a satisfactory pace for the Connecticut Light & Power Company, West Main Street, General Electric dealership. An S-100 refrigerator and six smaller G-75's were installed recently in the Connecticut School for Boys, Colony Street, part of the state corrective system.

A G-75 was recently installed in the Franco-American Club, West Main Street, and a G-100 in the Meriden Lodge of Moose quarters, also located on West Main Street.

K. M. Lander recently became commercial manager for the power company's Meriden branch, succeeding P. F. Lee, who is now connected with the Connecticut Electric Refrigerating Company, New Haven, state distributors for the new Westinghouse refrigerators.

RAMBLING NORGE VISITS ILLINOIS CAPITAL CITY

Springfield, Ill.—The Haas Electric Mfg. Company, 305 East Monroe Street, distributors for the Norge refrigerator, had as its guest recently J. A. W. Sumner, St. Louis, Mo., representative of the Norge Corporation of Detroit, Mich. Mr. Sumner was driving the specially designed four-passenger coach mounted on a Cord front-drive car, carrying the Norge "package" refrigerator for display and demonstration, which was described in the April 23rd issue of the NEWS.

REFRIGERATOR IS PRIZED POSSESSION

Milwaukee, Wis.—It might be of interest to refrigerator manufacturers and their distributors to know what storage warehousemen—household goods—have learned about electric refrigerators in the last few seasons. These companies are also packers and shippers of household goods, sending them to all corners of the world.

In recent years folks who are moving to other states have often sold their goods before leaving, not wishing to pay freight rates and packing charges. The money received would be invested in new goods at point of destination. Invariably, however, those who sold their goods kept one article for shipment, and that was the electric refrigerator. This they would not sell unless really hard up for money. Refrigerators were crated and shipped, even as far as Johannesburg, South Africa. It seems that refrigerators are among the prized possessions of families, and parting with them is not to be considered. Somehow they are thought of as a living, breathing thing, and more like a pet than a mechanical device. Storage men say few people will move to another state without taking their refrigerators with them.

DOMESTIC BUDGET MAKES ROOM FOR REFRIGERATOR

Detroit, Mich.—The man with the statistical type of mind often is impervious to the more emotional appeals when he is asked to buy an electric refrigerator. H. C. Guimaraes, sales promotion manager of the Westinghouse Electric Supply Company of this city, has prepared some effective ammunition for the salesmen who encounter the man who wants to know all the facts and figures in regard to the cost of a Westinghouse domestic refrigerator. They appear in *Cold Selling Talk*, the Westinghouse publication. Here they are:

Average American family purchases $578.00 food per annum.

Average usage of ice, 20.20 per annum.

Food spoilage or wastage, 20% per annum.

Of which 10% is saved through refrigeration.

Quantity buying shows saving of 16½% over unit buying. We take only 10%.

Cost of ice box of wood, good quality, 4 cu. ft. capacity with 5 sq. ft. shelf space is about $75.00 and will last about 10 years.

Cost of the WL-55—5½ cu. ft. capacity and 11 sq. ft. shelf space. We will take at $300 in round figures; and it will last at least 10 years.

The comparison is as follows:

Ice Refrigerator		
Cost per annum	$20.02	
Food spoilage	57.80	
Quantity buying	57.80	
Depreciation Ice Box 10% per annum	7.50	
Interest, 6% on $75.00	4.50	
Cost of food preservation with ice per annum		$147.80
Westinghouse Refrigerator		
Depreciation 10% per annum	$30.00	
Interest, 6% on $300.00	18.00	
Current $1.00 per month	12.00	
Service incidentals	2.00	
Cost of 100% refrigeration by (W) per annum		65.00
Economy per annum in favor of Westinghouse		$ 82.80
If we divide the cost of the Westinghouse		$300.00
by its saving per annum of		82.80
we have a figure representing		3.7 years

which means the (W) will pay for itself in 3.7 years, or say, 4 years for easy figuring.

Let us now compare the cost of 60% food preservation by ice with 100% preservation by Westinghouse over a period of 10 years:

Ice		
10 years at $147.80		$1,478.00
Westinghouse		
As it pays for itself in 4 years. We shall have the following figures:		
Four years at $65.00		$240.00

During the next 6 years, as the machine has paid for itself in 4 years, there is no depreciation or interest on the money and the expenses are consequently as follows per annum:

Current	$12.00	
Service, Inc.	5.00	
6 years	$17.00	$102.00
Cost of Westinghouse operating expenses for 10 years	$342.00	
Plus original cost of (W) machine	300.00	
Total Westinghouse cost for ten years		$642.00
Saving of Westinghouse 100% refrigeration against ice 60% refrigeration over a period of 10 years		$832.00

or $83.20 per year for the entire period.

At the end of 10 years, you'll have made the saving and still have the Westinghouse refrigerator.

WEST PENN SYSTEM SETS NEW SALES RECORD

Pittsburgh, Pa.—Almost a quarter of a million dollars' worth of electrical appliances were sold during the month of July by the merchandise department of the West Penn Electric System, a new all-time record for the company.

Appliances sold included 678 Frigidaires, 104 ranges, 17 water heaters, 22 ironers, 622 irons, 60 vacuum cleaners, 23 radios and 297 fans. More than 25 freight cars were required to haul this merchandise, which had a total sales value of $243,000.

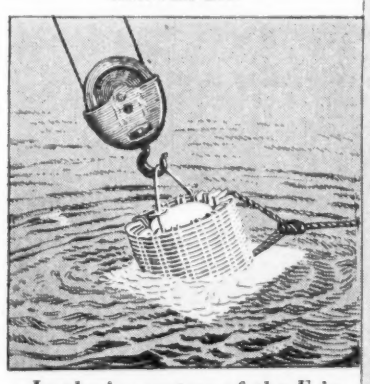
One of the high spots in the campaign was the sale of 23 Frigidaires, 23 ranges and 26 water heaters to the owners of a new apartment house in State College, Pennsylvania.

Fire and Flood *and* Raging Blizzard

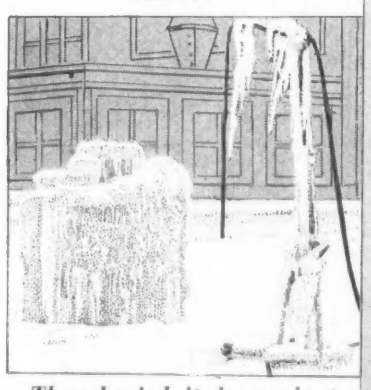
powerless to check the efficiency of the monitor top

The following tests were made at Schenectady during February, 1930:

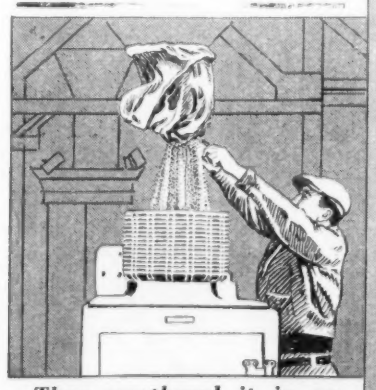
FIRE *—For hours they baked and roasted it in a roaring fire. It still ran on!*



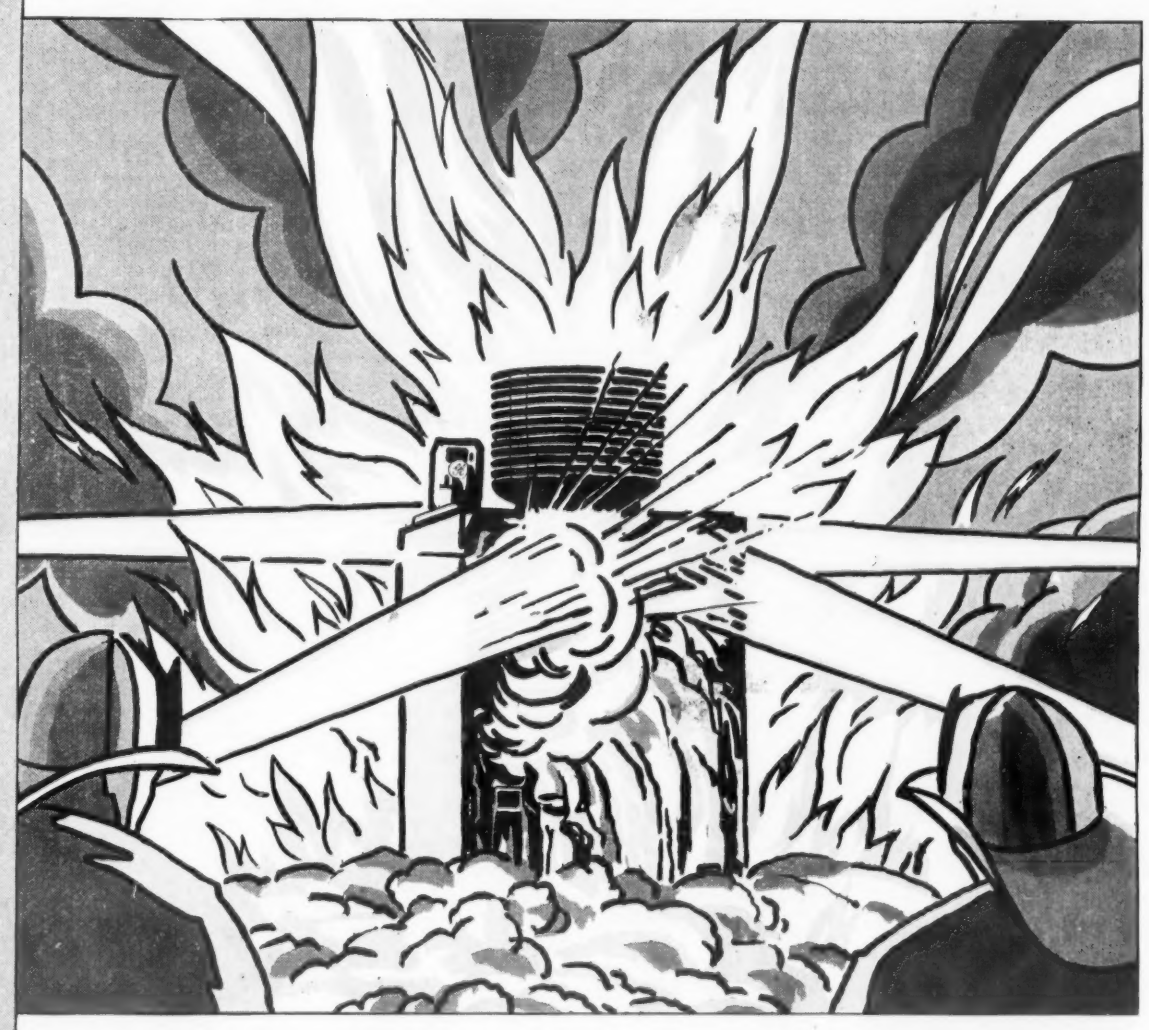
FLOOD *—In the icy waters of the Erie Canal they drowned it. It still ran on!*



BLIZZARD *—They buried it in a giant tower of ice. It still ran on!*



SAND *—They smothered it in an avalanche of fine sand. It still ran on!*



WHAT a refrigerator for you to recommend and sell! Buried in sand, frozen in ice, drowned in water, roasted in flames—it still ran on. What good business for you to be associated with *such* a piece of merchandise! What a proof with which to convince prospects of the dependability, efficiency and durability of the General Electric Refrigerator.

The General Electric Refrigerator—with all its moving parts fortified in the Monitor Top against air, dirt and moisture—with a mechanism so efficient that it runs at a cost of but a few cents a day—is within the means of *every one*.

Our *advertising* is telling them. *You* tell them, too—and you'll *sell* them!

GENERAL ELECTRIC

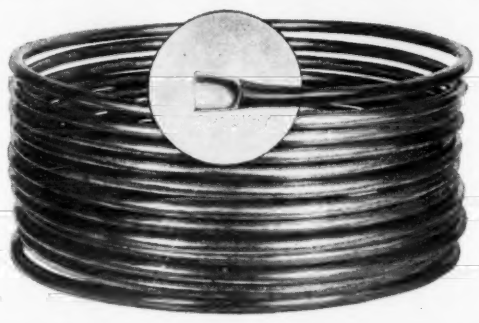
ALL-STEEL REFRIGERATOR

ELECTRIC WATER COOLERS • COMMERCIAL REFRIGERATORS • ELECTRIC MILK COOLERS

ELECTRIC REFRIGERATION DEPT., GENERAL ELECTRIC CO., HANNA BUILDING, 1400 EUCLID AVENUE, CLEVELAND, OHIO

DEHYDRATED WOLVERINE SEAMLESS COPPER TUBING

Highest quality seamless copper tubing—perfectly dehydrated and solder-sealed—made to A. S. T. M. Specifications (B-68-30-T)—ready for quick installation. Send your production requirements for quotations, or wire for rush shipment from stock.



WOLVERINE TUBE CO.

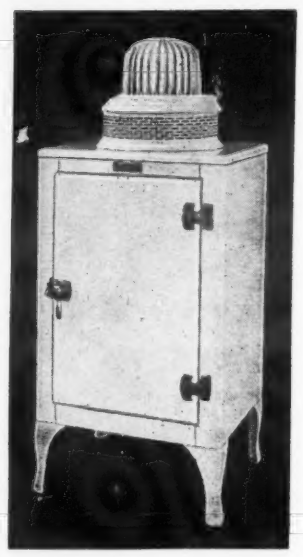
SEAMLESS COPPER BRASS & ALUMINUM

1491 Central Ave Detroit, Mich.

Phone Cedar 5000

Export Department—H. M. Robins Company, 120 Madison Avenue, Detroit, U. S. A. *Cable Address:* Robns, Detroit

Sales offices in all major cities. Stock available at Los Angeles, 224 E. 11th St. Write or wire for name of nearest representative.



WILLIAMS

ICE-O-MATIC

REFRIGERATION

has adopted PENN TYPE 'J' UNIT CONTROL as Standard Equipment

FOR several years the Williams Ice-O-Matic has used Penn Type L as standard equipment. Not once has there been a case of contact failure. It has demonstrated the unfailing performance of the patented Penn magnet switch . . . the same structure that now has been incorporated into the new Penn Type J Unit Control. Because of the remarkable record of Type L, and because Type J embodies in one compact instrument all the fine features of several Penn controls, the Williams Ice-O-Matic has not hesitated to adopt it as standard equipment in addition to Type L.

Penn Type J 5 Plus Values

1. One dial control.
2. The movement of the dial in half circles lowers temperatures to suit manufacturers' specifications.
3. It provides the means for starting and stopping for defrosting.
4. It acts as reset button when thermal overload protector has opened the circuit.
5. It is also designed for easy and quick adjustment of both the range and differential.

Write today for complete specifications. Learn how you can simplify the control of your domestic electric refrigerators. Simply address,

PENN ELECTRIC SWITCH CO.

DES MOINES, IOWA

Manufacturers of simplified electric controlling devices now used as standard equipment on many of the leading makes of electric refrigerators both domestic and commercial.

DAYTON COMPANY ENTERS LOW PRICE COMPETITION

(Concluded from Page 1, Column 5)

experiments for one of the larger concerns in the industry. Having no electric refrigerator in his home, he decided to build his own.

Upon the completion of his unit and the use of it in his home, he became convinced that there was a market for a sturdy, low-priced electric refrigerator like the one he had built. Mr. Yount later joined forces with him, after a number of years with various concerns in the field, and the Dayton Refrigeration Company is now busy getting regular production under way.

Dayton electric refrigerator cabinets have a lacquer exterior and a porcelain interior. Two ice cube trays with a capacity of 56 cubes will be furnished in both models, together with a defrosting tray. All models are five inches from the floor, giving ample cleaning room. The mechanism is below the food compartment.

The Model 5-A provides 8 square feet of shelf and 5 cubic feet of food space. The Model 6-A, the two-door type, has 6 cubic feet of food space and 9 square feet of shelf area. It has been announced by officers of the company that Dayton cabinets will be furnished in a variety of colors.

The Dayton mechanism occupies a compartment measuring 12 inches. There is a temperature control, and the cabinet rests on 5-inch legs. Mr. Brown announced on September 16 that his company had completed negotiations for the acquirement of a large factory building on Miami Chapel Road, Dayton, which will house the factory and offices of the new electric refrigerator company. The company will move into its new quarters at the beginning of October.

VERDICT UPHOLDS PATENT CONTROLLED BY DRY-ICE

New York, N. Y.—Ownership of the so-called "Hydrice" patents was given the DryIce Corporation of America under a contract entered into by it in 1925 with W. S. Josephson, of New York, principal owner of the Hydrice Corporation, by a decision handed down Sept. 5, by Federal Judge Marcus B. Campbell, in the United States Court for the Eastern District of New York. In his decision, Judge Campbell made permanent a preliminary injunction issued on May 19, 1930, by Judge Grover M. Moscowitz, of the same court, restraining Josephson from licensing the manufacture and sale of "Hydrice," a combination of ice and solid carbon dioxide, in violation of the contract in suit.

The present decision compels Josephson, who was one of the organizers of the DryIce Corporation, to carry out a contract entered into with it in 1925, whereby he agreed to turn over to the corporation any inventions or improvements which he might have or acquire relating to its business. The contract was made at the time the corporation acquired through Josephson certain patent rights, including among others those of Thomas B. Slate, covering refrigeration by solid carbon dioxide, and was intended to protect it from subsequent competition by Josephson. On the basis of these patents, among others, the DryIce Corporation has built up a nation-wide business in solid carbon dioxide under its trade-mark "DRY-ICE." In 1929, in competition with this business, Josephson formed the Hydrice Corporation to market his invention of a mixture of ice with solid carbon dioxide. Suit, which has now been decided in its favor, was brought in the United States District Court here by the DryIce Corporation of America against Josephson to secure the assignment to it of the new inventions involved. A similar suit is pending in the Delaware courts against Josephson's Hydrice Corporation.

In his decision, Judge Campbell said in part:

"The problems of business are the same for both plaintiff and defendants. The employment of CO_2 is essential to both. The commercial outlets of both parties are the same. Both Messrs. Slate's and Josephson's claims are for a form of solid dioxide. Mr. Slate's claim was for compressed snow constituting a solid. Mr. Josephson's claim was for hydrated solid carbon dioxide. * * * Plaintiff tries to remove the water from its product. Mr. Josephson deliberately introduces water into his product while the gas is in its vapor form. Both relate to refrigeration by solid CO_2, and let the differences be what they may be, Mr. Josephson's application is related to, connected with, and grows out of the claim of Slate for refrigeration by the use of solid CO_2. The plaintiff is entitled to specific performance of the contract. A decree may be entered in favor of the plaintiff, as prayed for in the bill of complaint, with costs and the usual order of reference."

Judge Campbell also held that the contract with Josephson, one of the organizers of the DryIce Corporation of America, was intended to safeguard this particular business, and that no hardship or injustice would be imposed on Josephson if he was compelled to live up to his agreement. Judge Campbell said on the contrary that great hardship would be imposed on the plaintiff and its stockholders who, relying on the contract with Josephson, invested heavily in the company.

PATENT ON LARKIN COIL GRANTED AT WASHINGTON

(Concluded from Page 1, Column 3)

in the refrigerating chamber in such position as to originate and maintain a definite convection circulation within the refrigerator with the employment of either large fin plates common to all the coil sections, or small fin plates individual to the tubes.

"A unit covering a header and a single horizontal pipe loop extending from the header with the fin plate perpendicular to the sections of the pipe loop and in heat absorbing contact with at least one of the horizontal pipe sections."

The Larkin-Warren Refrigerating Company recently completed additions to its plant in Atlanta, which doubles the coil production capacity, and installed special machinery designed to speed up production. According to V. P. Warren, president, his company is embarking in a vigorous expansion program to extend the use of Larkin coils and to offer special service to the manufacturers who have adopted this product.

MANY JOPLIN HOMES BOOST REFRIGERATORS AS RESULT OF DRIVE

Joplin, Mo.—Assigned a quota of 200 Frigidaires to sell here during a recent two-months' loyalty campaign, salesmen of the Empire District Electric Co. went over the top with eight to spare. Thirty company employees were on the list of Frigidaire purchasers.

Ralph D. Rodkey, known around these parts as a great college sprinter, established some new records in running down prospects. As a result, he sold 23 commercial jobs to lead the field.

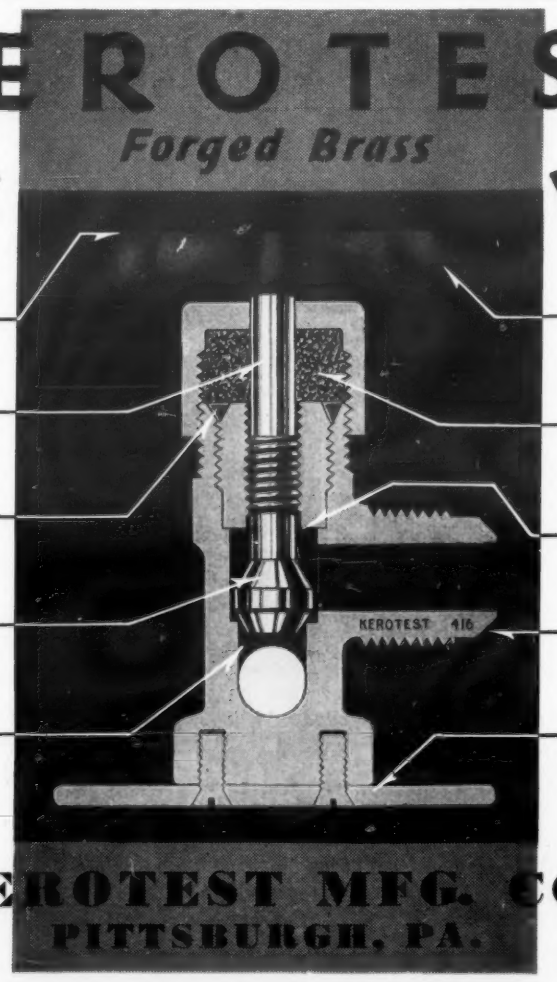
Other salesmen were Charles Wells, Harry Snow, F. S. Rinker, Oscar Markham, George W. Rauch, J. M. Flannery and S. F. Jones.

Spreading the Appeal

Belding, Mich.—Refrigeration took to wheels and scored a big hit in the Labor Day parade here, which attracted the attention of thousands of persons living in this vicinity. The Belding-Hall Co., manufacturers of domestic and commercial refrigeration cabinets, loaded a number of its products on a decorated float to represent refrigeration in the cavalcade.

KEROTEST 3-WAY VALVES

Forged Brass



TYPE 416

Only $3\frac{1}{16}$" high when full open.

Stem of hard non-corrosive bronze.

Seating bushing securely threaded and soldered into valve body.

Upper bevel on head of stem seats on inside edge of brass bushing when stem is in full open position, making high pressure gas or liquid tight joint.

Full openings throughout equal to inside of copper tubing employed.

TYPE 416

Forged Brass Handwheel knobbed for convenient grip.

Extra large packing chamber with great compression possible through outside type packing nut.

Metal to metal back seat when stem is in full open position.

Maximum size ½" SAE flare spuds.

Holes in mounting flange accessible for attachment in shallow knockout boxes.

KEROTEST MFG. CO.

PITTSBURGH, PA.

Henry Ford says:

"MODERN INDUSTRY must always strive to improve its product and reduce the price of the improved product. *This is Service.*"

Dry-Zero Corporation believes that Mr. Ford is right.

The purpose of Dry-Zero is to serve the Refrigeration Industry. This can only be done by providing Quality at low cost.

In pursuance of this policy Dry-Zero has been steadily, unremittingly, improving its product while costs have been brought down, until now Dry-Zero is not only the most efficient and permanent commercial insulant known, but the most economical for the Manufacturer as well as the Consumer.

● ●

As striking evidence of this development of Dry-Zero, we take the greatest pride in announcing to the Industry that in recent authentic standard tests, Dry-Zero Pliable Slab has now reached the record low conductivity of .221—an efficiency never heretofore considered possible.

● ●

This is a milestone in the development of insulation.

And this is only a portion of the *service* Dry-Zero has to announce. The complete story will shortly appear in the pages of this publication.

DRY-ZERO CORPORATION, 130 NORTH WELLS STREET, CHICAGO, ILLINOIS

DRY·ZERO

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

IRRESPONSIBLES LOSING IN SIFTING OUT PROCESS

Toronto, Ont.—That present business conditions aid the manufacturer in analyzing his outlets, was the statement made by H. A. Lewis, managing director of Kelvinator of Canada, Limited, at a sales meeting held in the Royal York Hotel, recently.

"Now," said Mr. Lewis, "the responsibles in our dealer organization are being sifted from the irresponsibles. Today we can get a more accurate picture of the stability of retail merchants than ever before."

Mr. Lewis, who is also treasurer and in charge of export operations of Kelvinator Corporation, Detroit, was addressing some twenty-five Kelvinator officials and representatives, gathered at Toronto for the regular sales meeting. Mr. Lewis was followed by G. W. Brown, president of Cockfield, Brown & Company, advertising and merchandising counsel, who pictured present conditions in Canada as merely a temporary breathing spell in the Dominion's forward progress. Mr. Brown stated the pendulum of business is already swinging back, according to his company's field investigations.

F. S. McNeal, general manager of Kelvinator of Canada, and P. A. Manross, assistant general manager, presented plans for the near future. The meeting was highly optimistic in view of the year's results to date, given by Mr. McNeal and A. V. Phillips, commercial sales manager.

A visit to the Canadian National Exhibition was a prominent feature of the program. The striking frosted cornucopia, which centered the Kelvinator display, drew much attention, and large crowds were to be seen at all times in front of the booth. Other interesting attractions included a small Kelvinator refrigerated display case, developed by Kelvinator of Canada engineers, and the new Kelvinator Yukon. The Kelvinator display was much larger this year than ever before, additional space being taken by the company. Dinner at the Royal York Hotel concluded the session.

CENTRAL HUDSON COMPANY SPEEDS UP CONSTRUCTION

Poughkeepsie, N. Y.—A million dollars' worth of merchandise will be diverted into local merchandising channels this year by the Central Hudson Gas & Electric Corp., according to estimates recently made by this utility. Under its former policy of aggressive selling, this business would have been handled directly by the central station.

According to T. R. Beal, president of the corporation, the Hudson Gas & Electric Corp. is also helping the community it serves by a speeded-up program of construction. During the first six months of June approximately $1,250,000 worth of construction expenditures were made.

The new community co-operation merchandising and service plan sponsored by the Hudson G. & E. Corp., assistance is being given to all organizations selling standardized gas and electric merchandise, including electric dealers and contractors, plumbers, department stores and hardwood merchants.

Among the services offered to these various classes of dealers are the financing of time payments, the co-operation of the Home Service bureau personnel in store and home demonstrations, the practical testing of appliances pending their adoption by dealers, newspaper advertising, window display service, use of the company's market records, and the training and supervision of salesmen. The dealers and the Central-Hudson organization are finding the new arrangement mutually profitable in a great many ways.

Refrigerator is Common Denominator

Marshall, Tex.—The universal appeal of the electric refrigerator never was better illustrated than in this community. When the new Frigidaires made their appearance, an energetic salesman made a thoroughgoing canvass and talked the gray line morning, noon and night. As a result of his work he found homes for several refrigerators. Two of these homes are shown in the accompanying photographs.

Roy Barnes, who owns the Colonial mansion, bought a Frigidaire.

Marco Washington, who is a negro and lives down by the railroad tracks, has one too.

MAKING IT UNANIMOUS

Springfield, Mass.—Thanks to the enterprise of the Electric Device Co. of this city, Chapin & Neal, patent attorneys, of this city, are 100 per cent sold on General Electric refrigeration. This firm has a General Electric water cooler in its office. One after another, four of the firm and its office staff became General Electric users. The remaining member, Chester T. Neal, has just joined the procession and made the thing unanimous. The advantages of electric refrigeration were impressed upon him so thoroughly that he rebuilt one corner of his kitchen in order to remove the large ice box and extend the shelving of the kitchen cabinets to fit the new installation.

TRIPLE PLAY

Danbury, Conn.—The Danbury & Bethel Gas & Electric Light Company has placed three General Electric refrigeration units in the Ridgewood Country Club here. A refrigerator, an ice cube machine and a water cooler have been installed.

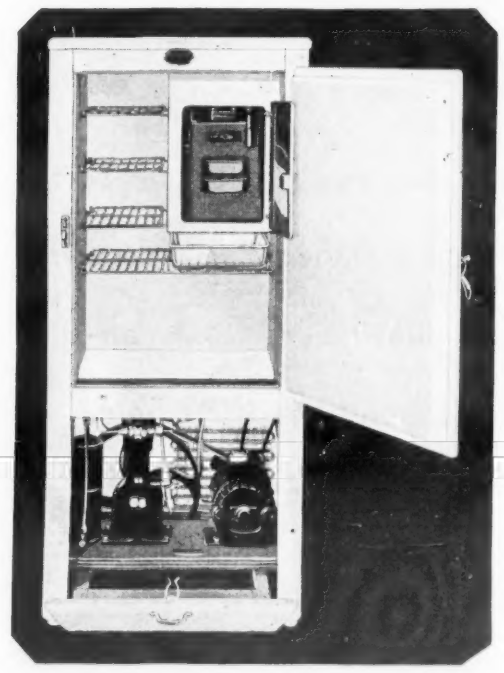
MOTION PICTURES HELP SALESMAN CONVINCE DEAF MUTES

New York, N. Y.—What would you do if the prospect upon whom you called turned out to be a deaf mute, and her husband as well? Many salesmen would consider the task hopeless, and make a graceful exit. But not Edward J. Blanchard, of the Jamaica retail sales division of Rex Cole, Inc.

First, Mr. Blanchard attracted the interest of his prospect, Mrs. John Morello, with his sales presentation book. Next he brought out his motion picture outfit and showed two films to both deaf mutes. The visual appeal worked, and Blanchard landed an order for a General Electric refrigerator from the silent couple.

The Leader Model Universal Cooler

~ ~ *gives* low cost quality refrigeration



THE refrigerator prospect of today is looking for a bargain—which means, indirectly, that the dealer who is handling the Leader has everything in his favor. This quality refrigerator has pleasing lines, cold control, porcelain interior, satin finish hardware and eight square feet of shelf area.

It upholds the Universal high standards of quietness, economy and durability—is self-contained—shipped completely assembled, ready to be plugged into any convenient light socket—and retails at a surprisingly low price which allows a very fair margin of profit for the dealer.

(*Complete information on request.*)

Universal Cooler Corporation

Detroit, Mich. - - - Windsor, Ontario, Canada

"It was built by BOHN"

The handy base cabinet may either be used for refrigerating machinery or the storage of cooking utensils, canned goods, vegetables, etc.

The name BOHN is our warranty that the finest materials obtainable have been utilized by skilled craftsmen and refrigeration engineers to build for you this beautiful and scientific product—an all-porcelain BOHN refrigerator.

BOHN installations include many of the leading hotels, restaurants and hospitals in America.

BOHN refrigerators are used exclusively on all Pullman-built railway dining and buffet cars.

The United States War Department has purchased hundreds of all-porcelain BOHN refrigerators for our army barracks and battleships.

In choosing BOHN refrigerators, discriminating home owners throughout the country have given BOHN a representative list of which any manufacturer might be proud.

Write for details of the remarkably low prices that are now prevailing.

BOHN REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

HANDY & HARMAN Silver Solders QUALITY SERVICE

for Leak-Tight Joints

you can depend upon

"HANDY" SILVER SOLDERS

These solders resist the corrosive action of chemicals, moisture and the atmosphere. They make neat, strong, permanent, leak-tight joints that stand up under shock, vibration and the play of expansion and contraction.

Silver-soldering or brazing puts an end to costly trouble. So little solder is required, and it is applied so speedily, that its use is an ultimate economy, all factors considered.

Send for Bulletin No. 3ER

HANDY & HARMAN
Executive Offices
37 William St.
NEW YORK CITY

Postal Telegraph

Z13 9 SAGINAW MICH 1206P SEPT 10 1930

KELVINATOR SALES CORPN-

DETROIT MICH-

ESTIMATE ONE HUNDRED VISITORS ATTENDED OPENING STOP

FOUR ORDERS AND LOTS OF GOOD PROSPECTS STOP FROM ALL

INDICATIONS YUKON WILL BE A BIG SELLER

KELVINATOR SALES CO JENNING.
1222P

WESTERN UNION

ZR100 10 LOUISVILLE KY 10 232P

KELVINATOR SALES CORP-

ATT J S SAYRE-

CHECK UP NOT COMPLETE STOP SEVEN YUKONS SOLD-

MUCH ENTHUSIASM STOP PROSPECTS LOOK GREAT

STRATTON & TERSTEGGE COMPANY TERSTEGGE.

WESTERN UNION

ZAB113 20 CORSICANA TEX 10 320P

KELVINATOR SALES CORP-

FIVE YOUKONS SOLD RETAIL ABOUT FIVE HUNDRED PEOPLE

IN OUR SHOW ROOMS YESTERDAY MANY LIVE PROSPECTS STOP

ANTICIPATE BIG VOLUME ON YUKON STOP EVERYBODY

ENTHUSIASTIC OVER PROSPECTS OF VOLUME AND PROFITS

JACKSON BROTHERS

WESTERN UNION

Received at Corner Congress and Shelby Sts., Detroit, Mich. ALWAYS OPEN

MA239 25 NM-BILLINGS MONT 10 1930 SEP 10 PM 4 28

J S SAYRE, SALES MGR-

KELVINATOR SALES CORP DETROIT MICH-

NEW YUKON RECEPTION GREAT LOCAL SALES FOUR UNITS STOP

SIXTY FOUR THOUSAND PEOPLE VISITED LOCAL FAIR WHERE

YUKON DISPLAYED STOP CONGRATULATIONS ON THIS NEW

MODEL.

BILLINGS HARDWARE CO.

Postal Telegraph

Z16 26 DL V DENVER COLO 1116A SEPT 10 1930

KELVINATOR SAYRE-

14250 PLYMOUTH ROAD DETROIT MICH-

LOT OF INTEREST IN YOKON STOP DENVER SHOW ROOM

WELL CROWDED WEDNESDAY STOP SALES DENVER ELEVEN

YUKONS AND FOUR OTHER MODELS FUTURE LOOKS ENCOURAGING-

PUBLIC SERVICE EAKINS.
208P

WESTERN UNION

CC2028 72 NL-PORTLAND ORG 10 1930 SEP 10 PM 11 38

J S SAYRES-

KELVINATOR SALES CORPORATION DETROIT MICH-

WE HAVE OVERSOLD ON THE YUKONS STOP WE HAVE A CAR ORDERED THERE NOW TO BE SHIPPED AT ONCE AND BY THE TIME THIS CAR REACHES US NO DOUBT WE WILL HAVE ANOTHER CAR ON ORDER STOP BOTH PUBLIC AND ORGANIZATION ENTHUSIASTIC ABOUT YUKON STOP CONGRATULATIONS

J H ANDERSON POWERS FURNITURE COMPANY.

Postal Telegraph

CA475 47 NL 1345 SEP 11 AM 12 24

JACKSONVILLE FLO 10

KELVINATOR SALES CORPN SAYRE

PLYMOUTH ROAD DETROIT MICH

REPORTS FROM OUTLETS INCOMPLETE BUT ALL INDICATIONS POINT TO UNUSUAL PUBLIC ACCEPTANCE OF YUKON WITH LARGE NUMBERS VISITING SHOW ROOMS TOTAL SALES APPROXIMATING TWENTY FIVE FOR THE DAY WITH PROSPECTS FOR FIFTY MORE ENTIRE ORGANIZATION ENTHUSIASTIC

KELVINATOR KIMMELL RICHARDS.

WESTERN UNION

ZAB66 40 DL CG MINNEAPOLIS MINN SEP 10 1930 1146A

J S SAYRE.

GENERAL SALES MANAGER-KELVINATOR CORP-

FOURTEEN YUKON SALES TUESDAY STOP NEW PROSPECTS THREE HUNDRED STOP RECEPTION VERY GOOD LOOKS LIKE A BIG SELLER STOP WISH WE COULD HAVE HAD IT FOR BUST THE BULB CAMPAIGN STOP WE COULD HAVE DOUBLED QUOTA-

B F SMITH.

Another triumph for Kelvinator—from Maine to California and from the Great Lakes to the Gulf, the New Yukon Model has been acclaimed both by dealers and the public alike. Telegrams are pouring in—orders are pouring in. And from all indications, the Yukon is going to be the biggest profit-maker for the dealer in the industry. Now is the time to start this *money-maker* working for you. Wire or write for full information about the many features that make the Kelvinator Agreement the most desirable in the industry today. ◆ ◆ ◆ Kelvinator Sales Corporation, Detroit, Michigan. Kelvinator of Canada, Limited, London, Ontario. Kelvinator Limited, London, England.

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The Business Newspaper of the Refrigeration Industry

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Too Much Imagination

A DISTINGUISHED refrigerating engineer was talking about service and servicemen the other day. He has been in intimate contact with them for many years, and was much interested in the news that the servicemen are forming a national organization. "When they get their meetings under way," he said, "there is one subject that I should like to see them discuss."

Elaborating that statement, he explained that entirely too many servicemen had their pet refrigeration complaints. In other words, when a man achieves a reputation for curing some particular disease to which refrigerators are subject, he almost always looks for that trouble first and strangely enough generally finds it. He performs the operation with which he is so familiar, and goes on his way rejoicing.

Of course, as our engineer friend pointed out, that kind of thing is not confined to refrigeration servicemen. Ever since appendicitis was discovered, there have been doctors who operate for appendicitis on the slightest provocation—and do a good job of it, too. Garagemen have specialties, and will start right in grinding the valves when you limp in with a flat tire. So the servicemen are by no means alone.

But just because others indulge in a natural human weakness is no reason why refrigeration men should follow their example. The truly competent physician is the man who keeps his mouth tight shut and his opinions to himself until he has made a thorough examination of every part of the complicated machine known as the human body. Then, when he does make his diagnosis, and goes into action with knife or with medicine, he acts on what he has discovered, not on any preconceived ideas of his own. If he does have a favorite disease, he keeps it sternly repressed, and refuses to let it influence his judgment.

So there is a good chance for the first convention of the National Society of Refrigeration Service Engineers. Let it accept this particular criticism in the friendly spirit in which it was offered, and see if something can't be done about it. The result should benefit both the industry and the servicemen themselves.

Take, for example, the man who always performs a major operation whenever he goes out on a call. Perhaps in many cases a minor operation would do the trick, and everybody concerned, especially the owner of the refrigerator, would be ever so much happier. Then there is the fellow who waltzes in, takes a quick look at the job, tightens his favorite connection, and is on his way. He might have to work a little harder and learn a little more, but he also might find that he had increased his earning capacity. And the refrigerator might keep on working properly after he had gone.

Imagination is a splendid thing when properly used. Perhaps it has some place in refrigeration service work, but it never will take the place of cool, careful analysis and diagnosis.

* * *

Part of the Family

TESTIMONY in regard to the esteem in which the electric refrigerator is held by the general public comes, every now and then, from unexpected sources. In a brief item on another page, a storage warehouse proprietor contributes his morsel of evidence.

In the course of his business he has to handle the household goods of countless families, who for one reason or another have been compelled to break up their homes, usually to move to some distant city. From his store of knowledge, gained by this experience, he duly records that although the average householder sells much of his furniture and other worldly goods when preparing to move away, he almost always clings to his electric refrigerator.

Our warehouseman informant insists that this has happened, not once but many times, and he certainly is in a position to know what he is talking about. He sees the lares and penates of a host of wandering families pass in review.

For some as yet unexplained cause, for which the refrigeration industry is most grateful, Mr. Householder regards his electric refrigerator as part of the family. He may sell his heirlooms, but not his refrigerator.

West Penn's Crew of Quota Busters

As told on another page, the West Penn Appliance Company has just finished a most successful sales campaign.

SERVICEMEN ARE FLOCKING TO NATIONAL ASSOCIATION

(Concluded from Page 1, Column 4)

CHAPTERS AND STATE SOCIETIES

This Society shall have power to grant charters to Chapters and to State Societies. Charter to Chapters shall be granted upon petition of ten or more service men whose affiliations are satisfactory. Charter to State Societies shall be granted upon petition of two or more Chapters within any state, when said Chapters consist of ten or more members, each of whom are in good standing.

The N. S. of R. S. E. shall have and retain the power at all times to provide for the formation of new Chapters and to enact laws and regulations for the government of the Chapters and State Societies, and to amend, revise or alter existing laws and regulations.

Chapters and State Societies shall at all times be governed by the National Constitution and By-laws, but each Chapter and State Society shall have the power to formulate such Constitution and By-Laws as may seem advisable; provided, however, that such do not in any way conflict with the National Constitution and By-Laws, and that they be approved by its National President and National Board of Directors before becoming effective.

All Charters for Chapters or State Societies shall be signed by the National President and attested by the National Secretary, who shall imprint thereon the seal of the National Society.

MEMBERSHIP

This Society shall be composed of regular active members, honorary members and associate members.

Any service man employed in mechanical refrigeration who can pass the investigating committee, and who is of good moral character, is eligible for active membership through a Chapter, or as a member-at-large if not subject to affiliation with a Chapter.

Honorary membership may be conferred as a mark of respect or distinction on persons who have rendered eminent service to the science of refrigeration or to the Society, and they shall have the privileges of Associate Members.

Any individual, firm or corporation identified with the refrigerating industry in the capacity of owner, manager, officer, manufacturer of machinery or supplies, consulting engineers, practical engineers, are eligible to associate membership, subject to such rules and regulations as the By-Laws may provide. They shall be bound by all the rules and regulations that govern the active members of the Society, keeping the secrets and private affairs of the organization as inviolate as their own.

They shall be allowed the privilege of the floor for the purpose of taking part in the discussion of all mechanical and educational subjects presented to the Society for consideration. They shall be allowed to prepare and read papers on mechanical and other topics of interest to the Society should they so desire.

EDUCATIONAL COMMITTEE

The National Educational Committee, which shall consist of three members appointed by the National President annually or as a vacancy may occur, that said committee shall devise and maintain suitable, practical, educational work, through the columns of the official organ, and by a system of correspondence with the Chapters and members-at-large, all members of this committee to be at all National Conventions.

The work of organization is proceeding with all possible speed, and the formation of chapters in every important city is urged. Letters of inquiry in regard to the society should be sent to Milton Boneburg, 67 Peach Street, Buffalo, N. Y.

STATEMENT OF PURPOSE FROM N. S. OF R. S. E. HEAD

EVER since the appearance of electric refrigerators as a household necessity, the refrigeration serviceman has been an essential factor in the refrigeration industry; and, as the complexity of mechanical and electrical design of refrigeration increases, an ever-higher standard of qualifications in the serviceman becomes necessary.

The necessity, also, of a strong society of technically-qualified refrigeration servicemen over the country is forcing itself upon all who are familiar with refrigeration trade problems; and their repeated urgings that such a society must be formed has led the refrigeration servicemen of Buffalo to form from the local Mechanical Refrigeration Society of Buffalo a national organization, the National Society of Refrigeration Service Engineers.

The fundamental purpose of the N. S. of R. S. E., which is incorporated, is not to make money, nor is it organized for private profit; there are no paid officers, all monies earned are turned back for educational work.

Membership cards will be issued to all members under the seal of the Society, which will attest each member's qualifications and prove his identity.

There has been a good response for membership to date, and the National Officers expect it to pass the 1,000 mark by January 1, 1931.

I, as National President, with all the other National Officers extend to all in the industry an invitation to join this, the only Society entirely for electric refrigeration men.

Every large city should have its Local Chapter. Why not one in your city?

The National Board of Directors are willing to aid in every way possible to organize Chapters.

Your request for application to join the N. S. of R. S. E. will stamp you as one of the servicemen who is trying to get above the crowd.

Yours very truly,
MILTON BONEBERG,
National President.

REFRIGERATION LEADERS WILL ATTEND MEETING

Detroit, Mich.—Arrangement for the big meeting of the Detroit Section of the American Society of Refrigerating Engineers at the Hotel Statler, on October 6, are being perfected by George B. Bright, who is in charge of the meeting, and Glenn Muffly, president of the section. Acceptances have been received from a long list of refrigeration executives, who will be present to contribute their views on the general subject, "Selling Refrigeration." The meeting bids fair to be one of the most noteworthy gatherings in the history of the industry.

With George W. Mason, president of the Kelvinator Corporation, in the chair, the following program will be provided for the benefit of the big throng of refrigeration men who will attend:

"WHAT THE A. S. R. E. MEANS TO REFRIGERATION." H. D. Edwards, President, A. S. R. E., New York.

"ETHICAL TRADE RELATIONS." H. W. Burritt, Vice-President, Kelvinator Corp., Detroit.

"THE PROBLEM OF THE SALESMAN." T. K. Quinn, General Manager, Electric Refrigeration Dept., General Electric Co., Cleveland, Ohio.

"THE INDUSTRY'S BIGGEST PROBLEM." E. G. Biechler, President, Frigidaire Corp., Dayton, Ohio.

"STABILITY OF ICE REFRIGERATION." H. D. Norvell, President, City Ice & Fuel Co., Cleveland, Ohio.

"WINTER SALES." Col. Frank E. Smith, President, Servel, Inc., New York.

"FLATTENING THE SALES CURVE." Louis Ruthenburg, President, Copeland Products, Inc., Mt. Clemens, Mich.

"NEW INDUSTRIAL APPLICATIONS." W. S. Shipley, President, York Ice Machinery Corp., York, Pa.

"RAISING THE STANDARD OF QUALITY." Walter Seeger, President, Seeger Refrigerator Co., St. Paul, Minn.

"MARKET SURVEYS." Carl Taylor, Sales Manager, Westinghouse Elec. Mfg. Co., Mansfield, Ohio.

"MANUFACTURED WEATHER FOR THE HOME." Willis H. Carrier, President, Carrier Engineering Corp., Newark, N. J.

"SELLING REFRIGERATION SERVICE." Arnold J. Heckey, St. Louis Refrigerating Co., St. Louis, Mo.

"WHAT OF THE FUTURE?" A. J. Authenrieth, Vice-President, Middle-West Utilities, Chicago, Ill.

The meeting will begin with a dinner at 6:30 P. M. and will continue until all of the distinguished speakers have had an opportunity to be heard. The selection of the Hotel Statler as the meeting place makes it possible to accommodate as many as care to come, and all refrigeration men are invited. Reservations for the dinner should be made at the earliest possible moment in order that arrangements may be made for taking care of all who wish to attend. It is expected that, in addition to those who arrive in time for the dinner, a large number of men will probably come in later.

Reservations should be sent to George F. Belshaw, secretary of the Detroit section of the A. S. R. E., at 478 West Alexandrine Street, Detroit, Michigan.

Selling Servel in Oklahoma

The commercial sales force of Spurrier Lumber Co., Servel distributors in Oklahoma City, Okla., who attended the Servel Commercial Sales Meeting held August 25th.

NEW PROGRAM TO STEP UP COMMERCIAL SALES

Evansville, Ind.—A series of Commercial Sales meetings, covering thirty of the largest sales points in this country and Canada, has just been completed by Servel Sales, Inc. The meetings were sponsored by the sales promotion and commercial sales departments, assisted by district sales managers of the various zones. Arrangements for the meetings in the various cities were made by the district sales managers, who, assisted by their distributors, also promoted a full attendance of dealers and salesmen.

The schedule required all of the month of August and the first week of September to complete. In some cases meetings were held simultaneously in different parts of the country, as many as three being held on the same day.

The eastern meetings were conducted by Carl Conkey, commercial sales manager, whose itinerary included Boston, New York, Scranton, Pittsburgh, Philadelphia, Allentown, Washington, Richmond and Norfolk. Decatur and Springfield, Illinois, meetings were also conducted by Mr. Conkey during the first week in September after the finish of his eastern schedule.

Southern and western meetings were in charge of W. J. Aulsebrook, sales engineer of the commercial department. This schedule included meetings at Birmingham, Meridian, Shreveport, Little Rock, Oklahoma City, St. Louis, Cedar Rapids and Hutchinson, Kan. A meeting in Cleveland was also conducted by Mr. Aulsebrook in the early part of September.

V. E. Vining, sales manager, and Paul Jones, advertising and sales promotion manager, were also pressed into service to complete the schedule as early as possible. Mr. Vining conducted the meeting in Minneapolis, for the Minneapolis, St. Paul and Duluth organizations, and Mr. Jones was in charge of meetings in Chicago, Toledo, Youngstown, Buffalo and Springfield, Missouri.

Canadian meetings were in charge of J. H. Carter, district sales manager.

Enthusiasm was in evidence in every meeting for the new commercial sales program which Servel now has under way. New sales helps in the form of a new sales album for commercial work, together with sales manuals which outline the entire new program, were presented. Each group was thoroughly schooled in its use.

Certain engineering problems were discussed dealing with the specifying, estimating and installation of commercial equipment.

Lester U. Larkin, vice-president, Larkin-Warren Refrigerating Corporation, Atlanta, Ga., manufacturers of Larkin coils, also assisted in conducting as many of the meetings as it was possible for one person to attend. In these meetings Mr. Larkin told a very interesting and helpful story of the invention and development of the Larkin coil. In addition, the numerous sales arguments in favor of Larkin coils were presented, together with instructions for their use.

FIELD MEN PREPARE FOR FALL BUSINESS

Detroit, Mich.—The district managers of the Kelvinator Corporation from every section of the United States were in convention with executives at the Kelvinator factory on Plymouth Road, Friday, Saturday and Sunday, Sept. 12, 13 and 14. Selling plans for the fall season were discussed in detail. A banquet was given for the district men by the Kelvinator Corporation at the Detroit Athletic Club, Friday night.

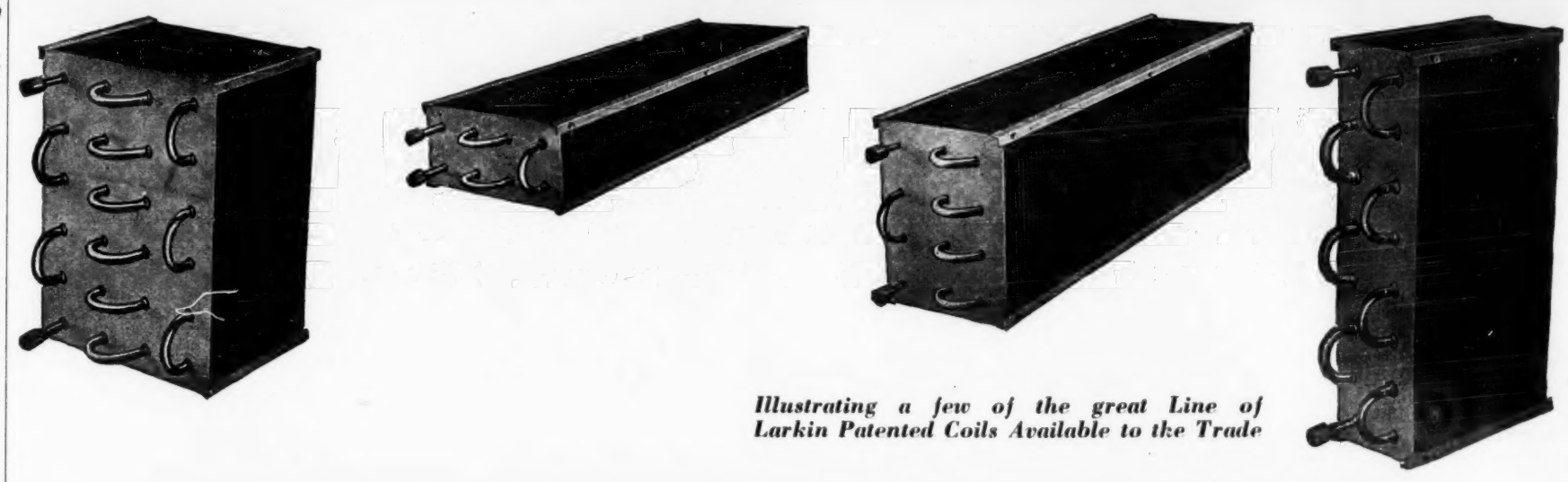
The district managers here for the convention were: C. R. Brogan, Charlottesville, Va.; J. C. Burton, Narberth, Pa.; C. V. Calkins, Detroit, Mich.; S. D. Camper, Louisville, Ky.; H. A. Dahl, Minneapolis, Minn.; Wm. E. Day, E. St. Louis, Ill.; T. P. Hallock, Jacksonville, Fla.; P. M. Johnson, Cambridge, Mass.; L. L. Langley, Durham, N. H.; J. K. MacCarthy, Raleigh, N. C.; T. H. Maginniss, Chicago, Ill.; W. B. Milliken, Denver, Colo.; C. D. Mitchell, Charlotte, N. C.; R. I. Petrie, Detroit, Mich.; H. L. Percy, Denver, Colo., and Campbell Wood, New York City.

WALKER AND RITTER VISIT EL PASO

El Paso, Tex.—J. M. Walker, representative of the General Electric Company of Cleveland, and Ben Ritter, Denver representative, were guests of E. O. Cone, local General Electric refrigerator distributor, September 12. Both are associated with the refrigerator branch of General Electric.

SOUTHERN SUPPLY SELLS G. E. IN BALTIMORE

Baltimore, Md.—The Southern Supply Co., 315-19 North Calvert Street, Baltimore, Md., a leading wholesaler of plumbing and heating supplies, has completed arrangements to sell the General Electric refrigerator. A comprehensive display of the latest models of General Electric refrigerators may be found at all times in the large showrooms.



Illustrating a few of the great Line of Larkin Patented Coils Available to the Trade

Issued September 16, 1930

UNITED STATES PATENT 1,776,235

Broadly Covering and Protecting

100% VERTICAL SURFACE

LARKIN COILS

FOR ELECTRICAL REFRIGERATION

Within a short span of months Larkin Coils have swept to National recognition in the field of electrical refrigeration. Manufacturer after manufacturer has investigated our claims for the wonderful performance and features of these coils. Test after test has been made. Larkin Coils have stood all tests and have been adopted as standard factory equipment by leading manufacturers.

And now, Larkin Coils are fully protected by United States Patent No. 1776235 issued September 16, 1930.

NOTICE

is hereby published that the Larkin-Warren Refrigerating Corporation intends to protect its Patent Rights

The Larkin-Warren Refrigeration Corporation by way of its patent, has obtained broad protection in regard to many points including the following points:

1. Wherein the aggregate area of the fins of the unit is substantially equal to the aggregate area of the bounding walls of the refrigerating chamber, and is the broad concept of the one hundred percent fin surface which results in the absence of frost forming on the coils.

2. The cross fin coil with aluminum fins, each fin being penetrated by the parallel pipe sections at a scientifically determined spacing insuring the greatest efficiency with the minimum area of the fin as applied either to the flooded type or the dry type system.

3. The arrangement of the cross fin coil in the refrigerating chamber in such position as to originate and maintain a definite convection circulation within the refrigerator with the employment of either large fin plates common to all the coil sections or small fin plates individual to the tubes.

4. A unit covering a header and a single horizontal pipe loop extending from the header with the fin plate perpendicular to the sections of the pipe loop and in heat absorbing contact with at least one of the horizontal pipe sections.

✓ and ✓ ✓ these Strong Features

Larkin Patented Coils, because of their original and unique construction absolutely nullify the de-hydration and defrosting problems of commercial Electrical Refrigeration. Further, they dispose of the costly servicing problem by virtue of their efficient, constant operation. These features alone, not to mention others, make them such a stand-out in the field of commercial electrical refrigeration that leading manufacturers have adopted Larkin Coils as standard factory equipment.

Facts For You
Manufacturers who have adopted Larkin Coils will gladly give you detailed information or, if preferable, write direct to the originators and sole manufacturers.

Larkin-Warren Refrigerating Corporation

ATLANTA ORIGINATORS and SOLE MANUFACTURERS **GEORGIA**

Standard Equipment with

Absopure DETROIT, MICH.
B-K, Junior New Brunswick, N.J.
Copeland DEPENDABLE Electric Refrigeration DETROIT, MICH.
WILLIAMS ICE-O-MATIC REFRIGERATION BLOOMINGTON, ILLINOIS
JACK FROST REFRIGERATION, Ltd. TORONTO-CANADA
KULAIR PHILADELPHIA, PA.
Electric-Automatic REFRIGERATOR PHILADELPHIA
POTTER PORTLAND, O.
SERVEL Electric Refrigeration
TRUPAR DAYTON.-OHIO
UNIVERSAL DETROIT, MICH.
Wayne FORT WAYNE, IND.
Zerozone Lifetime Refrigeration
and others

The Commercial Installation Presents Plenty of Problems

By Frank W. Gray

THE conditions under which commercial electric refrigeration equipment must operate in the field are so many and varied that manufacturers have been forced to leave many of the problems of the adaptation of their commercial equipment to the dealers. Installation problems constantly confront the commercial refrigeration dealer which the originators of the equipment could not possibly have foreseen, and which the dealer must work out by common sense and experience. The fact that many dealers have lacked this experience, and have subordinated common sense to "cut and try" methods has often resulted in loss, and has cast disrepute upon equipment that was really high grade if installed properly.

Let us consider first the expansion valve. It is astonishing that many "so-called" refrigeration engineers still persist in hooking up the conventional type of expansion valve to multiple freezing units. The writer knows of several large agencies in his own experience who have practically wrecked their commercial business by allowing service men to do this. The expansion valve of the usual construction is a very delicate piece of mechanism. It opens and closes through variations in the low side pressure only. If expansion valves are hooked up in multiple to various types of cooling coils, operating under varying conditions of heat loss, one can easily see that the low side pressures will vary, causing one freezing unit or the other to take all of the refrigerant through unequal action of the valves.

Why Run the Risk?

When the compressor cuts out, the tendency is for the entire charge of refrigerant to go into the low side through the valve that happens to be open, resulting in a spasmodic cooling of first one freezing unit and then the other. Of course, the service men can return to the job and readjust the expansion valves frequently, thus keeping some kind of operation, but electric refrigeration mechanisms are made and sold to be automatic in operation.

Theoretically it is possible to build cooling coils so engineered that the size of the coils is accurately proportioned to the heat loss involved, thus sychronizing the action of more than one expansion valve on a system by equalizing back pressures. But why run the risk of poor operation, when float valve operation adapts itself so well to multiple hook-ups?

A New Valve

A new automatic expansion valve is now on the market which is designed to operate in multiple. The producers of this valve are making careful tests to determine its efficiency on various systems. It would be well, however, for dealers to be certain of the adaptability of this valve to their particular problems before using it, since customers are usually more interested in results than theories.

The float valve, commonly known as the "boiler" or evaporator, also has limitations which are often disregarded. The float valve should never be used when installations are made on board ships, trains, automobile trucks, or any moving vehicle. The motion to which the float valve is subjected in this case causes the refrigerant to splash over into the suction line, causing back-frosting and very inefficient operation. In any installation of this type the expansion valve is the logical equipment. It might be said here that many expensive failures have resulted from attempted installations on board ships, automobiles, other vehicles, and trains. The factors of adequate battery capacity to run the motor when the vehicle is idle, combined with the erratic motion to which the unit is subjected and the inaccessibility to service, make this type of installation very much of a gamble as yet.

Moisture in the System

The service bugaboo of float valve operations seems to be stuck float valves. A float valve needle can become stuck from various causes, such as poorly seated valves, dirt in the system, bad hanging of coils, and moisture in the system. The writer is convinced that the largest proportion of float valve trouble comes from moisture in the system. Moisture in a float valve system can be very troublesome and very hard to eradicate. The careful use of a calcium chloride dryer placed in the liquid line when the installation is made generally eliminates moisture. Service men are often careless in taking the precaution of a dryer, since it necessitates an extra trip back to the installation in order to take it off again. But systems that are dried out in the beginning, especially in damp climates, usually give no float valve trouble.

The failure of the expansion valve to work on multiple hook-ups has caused many agencies to use what is known as a "tail over" hook-up. A "tail over" hook-up is simply the use of one expansion valve on a multiple system, merely insulating the low side coils leading from one cooling unit into another. The difficulties of the "tail over" job are obvious. It is a difficult installation to make in a workmanlike manner. The insulated line leading from one cooling unit into the other must be very carefully corked and sealed. Otherwise frost action will split open the cork and result in a messy drip and loss of efficiency. Such cork insulation work for any distance is expensive. Then, too, in many cases the insulated line must be carried under the floor, resulting in an oil trap and a line pressure loss.

Another difficulty of installing "tail over" jobs is the proper maintenance of temperatures. In the case of such a hook-up used on a meat cooler and display counters, the thermostat must be placed in either one point of cooling or the other. If the thermostat is placed in the meat cooler, there is often not enough heat leakage to operate the machine on short enough cycles to keep the display counters cold, while if the thermostat is placed in the display counter, under the same conditions, the meat cooler is very apt to get too cold. Float valve operation adapts itself much better to multiple installation, since each float valve operates independently of the other.

Mixing Things Up

Another frequent cause of trouble in commercial installation work is the tendency to connect miscellaneous types of cooling coils to one condensing unit. For instance, let us consider the problem of a restaurant installation, where the owner has a water cooler, an ice cream cabinet, a wall box or two, and a salad counter, all of which the dealer optimistically proposes to operate from one large machine. There is no space here to go into detail regarding the engineering and heat leakage factors involved in the correct operation of such a system as this. The risk of poor operation, in this instance, comes from the various conditions under which the cooling units are operating, and the various low side pressures necessary to produce efficient and even temperatures in each.

The ice cream cabinet is heavily insulated, should operate on a long cycle, and requires a very low back pressure to produce the low temperature required.

The water cooler and salad counters, on the other hand, are subjected to much greater heat leakage, and will operate on a higher back pressure and shorter machine cycles.

The wall boxes will have a moderate heat leakage, with medium back pressure and machine cycles.

Unequal Cooling

Obviously when we have such varying conditions, both of temperature and heat leakage on different cooling coils in the same system, unequal cooling is apt to be the result, particularly as a float valve system would be used, in this instance, with only a pressurestat control. Automatic pressure-reducing valves are sometimes used to co-ordinate such a system, but even with such equipment available it is a pretty good plan never to connect up low temperature cooling units with high temperature cooling units, especially if the load is heavy.

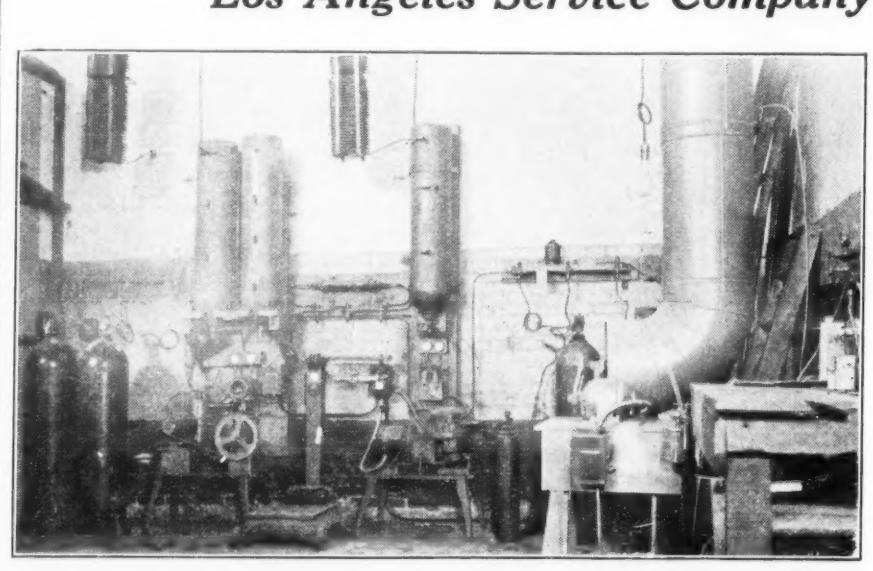
This same problem is often encountered in butcher shops where there are two or more meat coolers to be maintained at different temperatures. Particularly with the advent of quick-frozen meats, which must be preserved at low temperatures, there is a demand for a "sharp" temperature cooler or display case, and for a warmer box. Such a sharp cooler will be maintained at about 22 degrees or lower. The other cooler may be used for general meat storage, with a temperature of about 38 degrees. Varying lengths of cooling coils in the two boxes will be necessary to maintain this divergence in temperature. The difficulty in hooking up such units on the same machine is that the warmer box is usually used much more than the "sharp" box, and a direct proportion of temperatures will be hard to maintain, due to the spasmodic cycle of the machine. The best possible installation in this case is separate machines and thermostats for each unit.

Don't Overload

Another installation caution to be observed is—"Don't overload the machine in restaurant installations." Experience has shown that more failures of commercial equipment occur in restaurant installations with miscellaneous cooling units than in any other phase of the commercial field. Restaurants usually keep open evenings. Their kitchens are hot. Their basements are very warm in the summer time. The refrigeration equipment is called upon to meet a peak load at meal times. Restaurant coolers are opened and closed many times more in the course of a day than butcher shop coolers. Water coolers in restaurants are used almost continuously during meal times. All these adverse factors must be taken into consideration in the estimation of equipment for restaurant installations. At least twice the ordinary cooling unit and machine capacity should be provided for in such installations.

In many cases the dealer is called upon to adapt his equipment to the cooling of draft arms for beer coils or miscellaneous beverages. The same principles apply here as in water cooling.

Los Angeles Service Company



Refrigerant storage department.

(*Concluded from Page 1, Column 1*)

business at present, but is done in order to create goodwill for the organization. The customers, especially those who use their refrigerators for commercial work, have been quick to show their appreciation for this service, for which no extra charge is made, the daytime rates applying no matter what the hour. Eventually Refrigeration Service expects to keep a night man on duty in the office, and possibly a special night crew composed of men who do not work during the day.

The business in wholesale parts was started early last year in response to a persistent demand. A small quantity of parts was stocked at that time, and from that modest beginning, the parts department has expanded rapidly until at

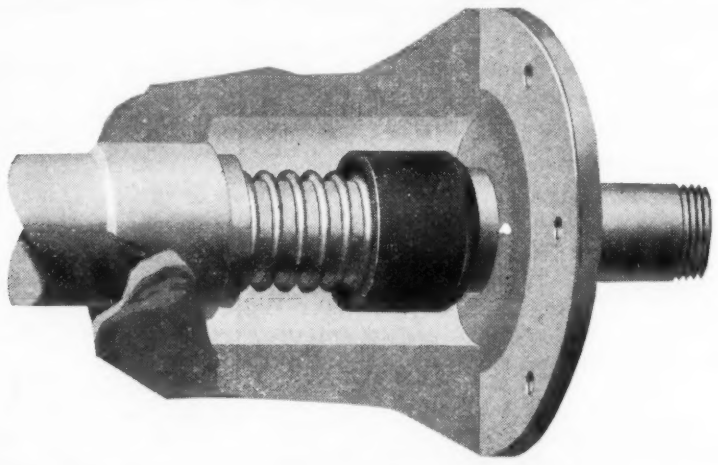
They Will Not Melt

Realistic Food Products

A complete assortment especially designed for refrigeration display.

27 ARTICLES FOR $20.00

Realistic Food Products Co.
266 Fabyan Place NEWARK, N. J.



An IMPROVEMENT *your Stockholders will welcome*

When profits are slim, any product improvement which will cut service costs is mighty welcome! The Cooke Seal Ring is one of them.

It is leak-proof. The most volatile refrigerant cannot get by its smooth-running ground joint. It does not squeak or overload the motor. First cost is its only cost and it will last indefinitely. And for dealers faced with the servicing of machines not Cooke-equipped, it is good news to realize that they can repair, on the job, with a minimum of time and labor, worn out packing or other types of seals with the Cooke Seal Ring.

Dealers and manufacturers will be wise in using this coupon now.

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Please tell me more about Cooke Seal Rings.
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City..... State.....

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ELECTRIC FRIGERATOR

12 HOUSEHOLD MODELS
All porcelain and porcelain-lined. From 4.3 to 32 cu. feet capacity.

COMPLETE COMMERCIAL LINE For Meat Markets, Grocers, Florists, Apartment House Multiple

THE Absopure franchise is an asset whose value will increase as refrigeration comes into its own. Some territory is still open. For details—write or wire the factory.

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Refrigeration Corporation
1560 Theodore Street
DETROIT - - MICHIGAN

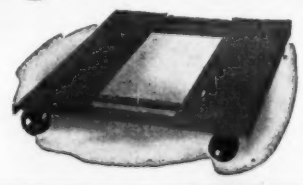
Offering
New Tag Time Operation Recorders

Especially designed to be used for checkiug operating time for electric refrigerators

PRICE **$15.00**
10 IN. DIA. CHART
Can be used on 110 volts, A. C. or D. C.

Offering 300 Steel Dollies

Especially designed as carriages for refrigerators



4 In. Dia. Cast Iron Swivel Wheels
Base 40 in. x 31 in. 11 Gauge Steel, Spot Welded

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FLINTLOCK CONDENSERS
Full Capacity

With Every Unit

FIN AND TUBE SAME SOLID PIECE OF MATERIAL

FLINTLOCK CORPORATION
4461 W. Jefferson Ave.
DETROIT, MICH.

The draft arm installation is difficult to make, especially where, as is usually the case, the draft arms were built for ice refrigeration. In most cases it pays to tear down the cabinet completely and to rebuild it with a new cooling tank, running the beverage coils around the sides of same, and putting the refrigerating coils in the center. If the beverage coils are left on the bottom, as is generally the case with iced units, they will be apt to freeze during slack hours.

Draft Arm Beverages

Usually in the case of draft arm installations, the beverages are drawn from a cooler in the basement where the kegs are stored. If this cooler is refrigerated at a low enough temperature, and the pipes are insulated up to the draft arms, only small coils will be necessary in the draft arms themselves to cool the beverage and a peak load may be handled much more easily.

In spite of the fact that manufacturers have stressed the proper use of air-cooled and water-cooled machines, many dealers persist in using air-cooled compressors in hot, unventilated basements. The evils of such an installation are many, and will be reflected in high service costs. The capacity of the machine is lowest in the summer time, when its heat load is the highest. The head pressure of an air-cooled machine is certain to rise when it is placed in a hot basement, making operation difficult and often blowing out fuses, burning out motors, and tearing up belts. Water-cooled machines are far more practical and certain of results in such locations.

Rubber Hose Helps

In the installation of water-cooled machines, however, service men should be careful not to make rigid plumbing connections to machines where the water pressure is high or varying. This causes hammering and vibration in the pipes when the water valve opens and closes. A short length of flexible rubber hose installed in the water supply line will usually counteract such vibration.

Another source of vibration in the installation of the larger machines is through the copper tubing lines. This machine vibration may be reduced to a minimum if loops are made in the tubing before it is bracketed to the wall leading up to the freezing units. The loops should be horizontal in order to eliminate oil trapping.

Lack of installation experience in the placement of float valve cooling units below the compressor, often results in oil logging of the coils. It is often the case in apartment house installations that refrigerators must be handled in the basement apartments with cooling units supplied from the main lines of tubing along the ceiling. In such a case the oil in the low side, or return line, is very apt to drain down into these cooling units before reaching the compressor, causing them to fill up with oil, or "oil log." This can be eliminated if an upward gooseneck is made in the return line connection down to the box, so that the oil cannot drain down.

New Standards Needed

Many of the faulty installation methods described above occur, not only from lack of experience, but because competition forces prices low and the job must be "slapped in" to make a profit. If it is difficult for competitive dealers to get together and agree on sale prices, the matter of price competition could be approached advantageously from another angle—that of standards of installation work. If these problems of commercial installation were taken up in dealer meetings, and if ideas were exchanged as to the best methods of solving them, and some definite standard for such work agreed upon, sale prices of equipment would automatically fall into line.

Manufacturer's list and net prices show little variance in comparative equipment. In most instances of rabid price competition, the cost of installation and varying standards of installation work are the determining factors. For instance, if dealers should agree that commercial jobs should be run in conduit, that the tubing should be trenched in concrete over open floor spaces, that hand-control valves should be used to facilitate cutting out one freezing unit or another for servicing, that ice cream cabinets should not be hooked up in multiple, etc., there could be little difference in the prices bid by competing dealers on commercial equipment.

Bad commercial jobs help the ice companies far more than they help competition. The advance of the electric refrigeration industry in commercial work depends to a large extent upon the correct installation and efficient operation of all the machines in the field. If dealers in their respective localities could get together and formulate codes of standard installation, the price situation would solve itself to a large degree and refrigeration sales would benefit over the field as a whole.

GETTING READY FOR SUMMER IN SOUTH AMERICA

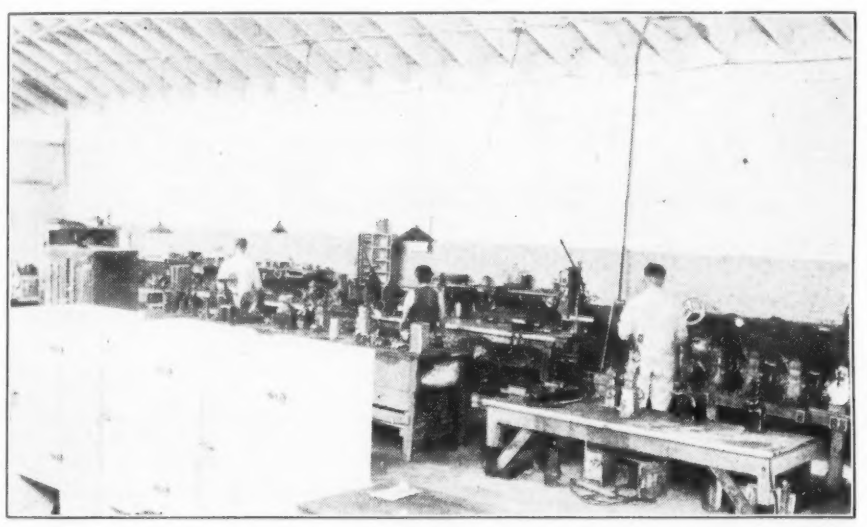
Spokane, Wash.—South America, despite the political and economic eruptions in Buenos Ayres and Peru, is buying Electro-Kold refrigerators. In Argentina, for instance, new electric refrigerator shipments are now being received from the Electro-Kold Corporation. Besides $10,000 worth of Electro-Kold products sent to South America last week, an additional order totaling $8,600 has been sent to the Buenos Aires Electro-Kold distributor.

LIQUID CARBONIC EXTENDS ACTIVITIES ON COAST

Portland, Ore.—A warehouse is shortly to be established here, for the solid carbon dioxide produced at the Liquid Carbonic Pacific Corporation's factory in Seattle. The new warehouse will be for immediate distribution of this refrigerant.

From the Seattle plant it is planned to supply the entire Northwest with the solid carbon dioxide through establishment of other warehouses in the important centers of the Pacific Northwest.

Builds Prosperous Business



At Work in the Service Shop.

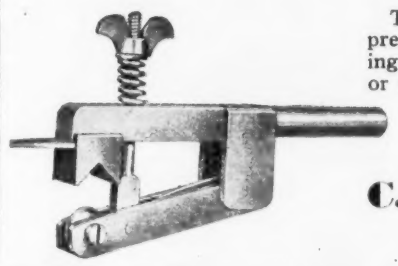
present a fairly large wholesale line is being carried. Shipments are made to refrigerator dealers all through the Pacific Coast states, as well as to Canada and Hawaii.

By the beginning of 1930 the original shop had become entirely too small to take care of the business, and it was necessary to move to larger quarters. The old building provided a floor space of 1,100 sq. ft., and in the present establishment 5,000 sq. ft. are available. Despite the big increase space is once more at a premium because of the increased business.

The picture of the offices which appears on the front page of this issue of the NEWS shows the character of the building in which Refrigeration Service, Inc., has its offices.

COPPER TUBE CUTTERS

New - Better - Faster



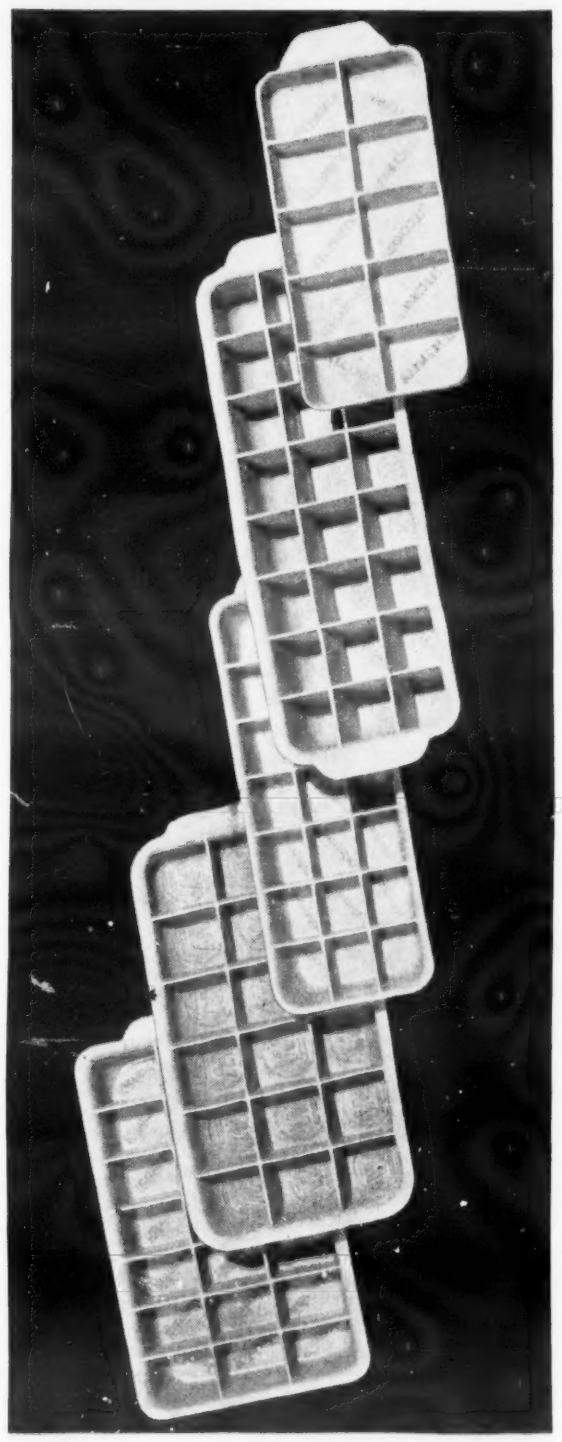
This Copper Tube Cutter, with automatic pressure feed spring, is in a class by itself. Tubing is cut quickly and cleanly, without flattening or threading tube.

MANUFACTURED BY

C. M. SMILLIE & CO.

520 E. LARNED STREET, DETROIT

Instant acceptance . . . FLEXOTRAY *establishes new sales record!*



FLEXOTRAY has been available to the public only a few months. Today it has nation-wide distribution. This immediate acceptance proves that FLEXOTRAY makes an instant appeal to the owner of any mechanical refrigerator which is equipped to freeze ice cubes.

For FLEXOTRAY is far more convenient than ordinary freezing trays. It saves time. Is more sanitary. Saves ice, gives colder ice cubes.

FLEXOTRAY is made of the purest crepe rubber, tough, flexible . . . long-lived. Just bend the tray and dump all the cubes into a bowl, or press the bottom up lightly with the fingers and take out two or three cubes . . . as many as you like. No waste!

No melting or splashing

Ice cubes will not stick to FLEXOTRAY. Out they pop, dry, sharp-edged, large-sized, and many degrees colder than those you *melt* out of metal trays.

And think of the saving to fine clothes! No splashing, as is the case when water is poured over metal trays to melt out the ice cubes . . . no dry-cleaners' bills.

FLEXO TRAY
THE INLAND MANUFACTURING CO.
MADE IN U.S.A. DAYTON OHIO
PATENT NO. 1875599 AND PATENTS PENDING

Better Ice Cubes . . . Easier

You can use* FLEXOTRAY *to sell electric refrigerators

Get your salesmen to take FLEXOTRAY *along when calling on old customers. It makes them welcome. It leads to sales of other equipment, and to an easy extension of the refrigerator prospect list.*

TO DEALERS

FLEXOTRAY can be obtained from manufacturers, distributors and dealers who handle the great majority of mechanical refrigerators sold today.

Get full information about FLEXOTRAY and its use by salesmen of mechanical refrigerators and appliances. If your organization does not handle FLEXOTRAY, write the manufacturer of your refrigerator or

THE INLAND MANUFACTURING CO.
DAYTON, OHIO

CALCO Sulfur Dioxide

"Buy the best, by every test"

Cylinders - Drums - Tank Cars

THE CALCO CHEMICAL CO., INC.

Bound Brook, N. J.

New York Boston Philadelphia

AMERICAN EXPANSION VALVES
AUTOMATIC-THERMOSTATIC
AMERICAN RADIATOR COMPANY

TEMPRITES

Help Increase Fall Sales

TEMPRITE distributors dominate their water and beverage cooling markets.

Theirs is a complete line—13 distinct cooling units—*15 to 160 gallons* an hour capacity range—24 different style restaurant and industrial cabinets—all kinds of installations—*dead-end, circulating, remote, self-contained, single* or *multiple, duplexing with other equipment*—drinking fixtures containing the cooling unit—lower initial, installation and service costs.

Always the Proper Temperature for the Application

The TEMPRITE line covers the entire liquid cooling field. Whatever the job, there is a TEMPRITE unit specifically designed in performance and capacity to handle it. New sales opportunities—more economical installations, lower initial cost, minimum service expense are advantages enjoyed by every TEMPRITE distributor.

Distributors and dealers are invited to write for an *Application* for *Selling Rights*, prices and discounts.

LIQUID COOLER Corporation
6527 Russe'l Street
Detroit , , Michigan

SUPER OIL EQUIPMENT FOR HOT OR COLD WATER

Hartford, Conn. — Running hot and cold water—long a sales point with hinterland hotels—are now furnished the trade by the Super Oil Heater Sales Co., of this city. Both electrically refrigerated water coolers and oil-burning water heaters are produced and sold by this company.

Three sizes of Super water coolers are listed, with capacities of three, three and one-half, and six gallons of water brought from 72° to 50° per hour. The three-gallon size is a bottle water cooler, whereas the other two have bubblers.

The water heater consists of a Super oil burner fitted into an American Radiator Co. tank. Its capacity for heating water is 70 gallons per hour. To increase a tankful of water 100° F. requires one-half gallon of low-grade fuel oil. This combination line provides a convenience which is greatly appreciated in certain localities. It is proving its popularity by steady sales.

DAVIS TO MANAGE BRANCH IN EVANSVILLE

Evansville, Ind., Sept. 13—A. S. Davis, for the last three and a half years district manager of southern Indiana, western Kentucky and northern Tennessee for the Electric Refrigeration Company, Louisville, General Electric distributor, has been named manager of the local dealer branch at 627 Main Street. He succeeds F. R. Stevens, who has been transferred to Louisville headquarters.

CRAWFORD TAKES NEW POSITION

Springfield, Ill.—H. B. Crawford, who for several years has been engaged in retail selling of electrical appliances in Springfield, has affiliated himself with the Capitol City Paper Company, where he will assume his duties as retail sales manager for electrical appliances handled by the Capitol City firm.

The Capitol City Paper Company handles the Electrolux refrigerator.

NEW ADJUSTABLE RANCO CONTROL

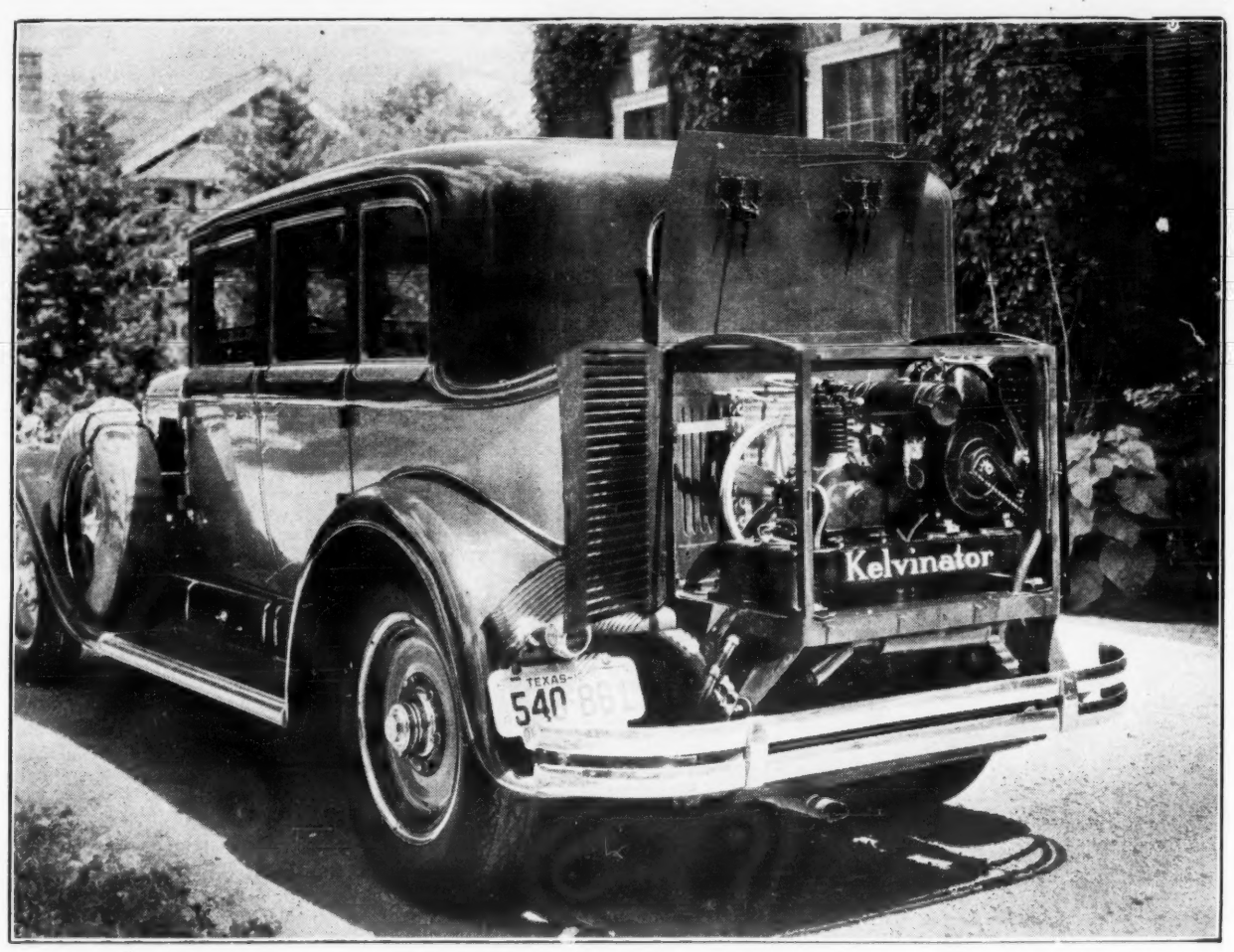
Provides an Ideal Temperature Range on Household Refrigerator

The Ranco Control for 1930 has many refinements and basic improvements which make it more than ever the ideal control for the modern household refrigerator.

WRITE FOR INFORMATION

The Automatic Reclosing Circuit Breaker Co.
COLUMBUS, OHIO U. S. A.

Refrigerated Automobile Appears



Houston, Texas—John Hamman, Jr., well-to-do business man of this city has worked out a new way to utilize electric refrigeration, and make it do its part in the conservation of his health.

He had his big Cadillac car refrigerated by the C. & C. Kelvinator Co., Inc., dealers here. According to Sales Manager William Anderson of the C. & C. Kelvinator Co., Mr. Hamman is afflicted each year with hay fever and cannot stand the dust and hot climate. Before he had his car refrigerated he left Houston every year and went to a cold climate for a while. This summer he has been able to stay in and around Houston and attend to his business.

The installation is thoroughly unusual and so far as known is the only one of its kind in the United States.

How things look inside

On the top or roof of the auto there is one-half inch of Celotex. In the back of the cowl there are three inches of Celotex, but it is not hydrolined.

On the inside of the car there are two flues, one on each side in back of the front seat, which take the air and bring it down to a fan on each side of the coil which blows the air through the coil. Pure air is circulated through this car every 20 seconds. A thermometer is on the side of the radiator. The temperature of the inside of the car can be maintained at 50 degrees when the outside temperature is more than 100 degrees.

The compressor is mounted on the rear, run by a 1½ H. P. gasoline engine. The compressor is ½ H. P. The whole outfit is compact, and when closed up looks like a trunk on the back of the car.

The installation has proved to be a success, and the owner is much pleased with it. The cost of this job which can be installed on any closed automobile was approximately $500.

HALLETT ADDS ANOTHER

Boston, Mass.—Distribution for Silverice balls in this territory has been taken over by Joseph L. Hallett, 1126 Boylston Street. Mr. Hallett's line of refrigeration specialties now includes Flexotray, Silverice, imitation foods, refrigerator dishes, ice cube tongs, and other silverware articles.

WESTINGHOUSE TO SHIFT ENGINEERING DEPT.

Mansfield, Ohio—Removal of the Westinghouse Refrigeration Engineering Department to the company's East Springfield, Mass., plant will take place about the first of November. Greater floor space is available in the Eastern plant and the Westinghouse engineers will be able to keep in close contact with the Manufacturing Department there.

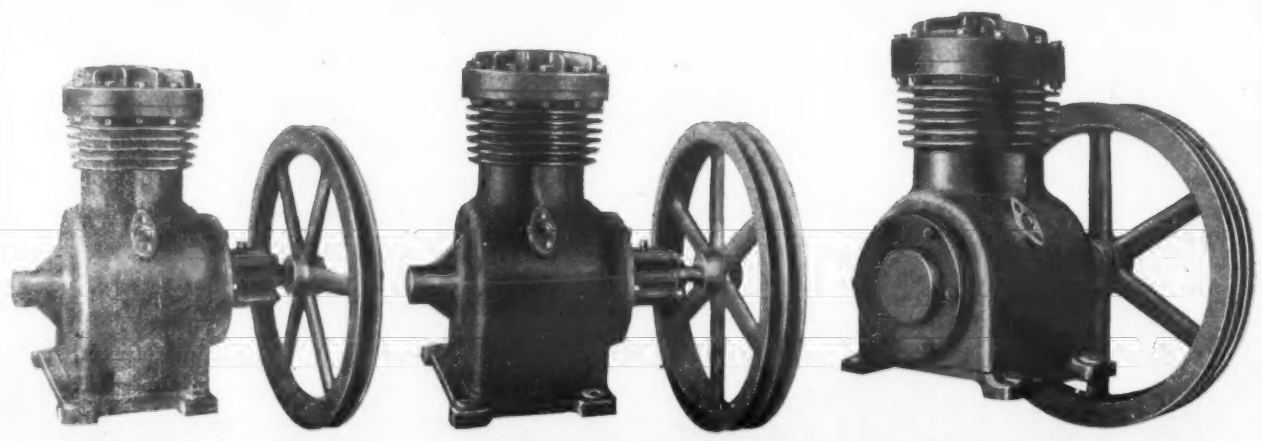
At the present time, the compressor, including the motor, is manufactured and assembled at the East Springfield plant.

CARBONDALE MACHINE CO. EXTENDS ACTIVITIES

Carbondale, Pa.—The Carbondale Machine Company has purchased the entire business, machinery and manufacturing facilities of the Refrigerating Department of the Excelsior Motor Manufacturing and Supply Company of Chicago, Illinois, in order to supply the trade with a smaller line of machines down to ¼-ton, self-contained, completely automatic.

This acquisition will enable Carbondale to supply capacities from ¼ ton to about 700 tons in single units. The Excelsior units are all of the duplex, vertical type, with V-belt drive.

Sulphur Dioxide Compressors



2½"x2¼" Twin—½ to ¾ H.P. 2½"x3¼" Twin—¾ to 1 H.P. 3"x3" Twin—1½ to 2 H.P.

A complete new series of Sulphur Dioxide Compressors for the commercial refrigeration field. Built by the pioneer refrigeration manufacturing firm of the Pacific Southwest. All castings and machined parts are made and assembled at the PARKER factory.

MANUFACTURED BY
Parker Ice Machine Co.
ESTABLISHED 1899

Factory
943 Third St.
San Bernardino, Cal.

Factory
2600 Santa Fe Ave.
Los Angeles, Cal.

Here it is . . . the New gyratory type compressor

. . . a Scientific Achievement

no pistons
silent . . .
long life . .
only two moving parts
no poppet valves

The International Compressor is of the gyratory type. This compressor is the result of 9 years' laboratory tests, backed by 25 years of refrigerating experience. There are only two moving parts on this compressor, namely, the rotor and eccentric shaft. There are no losses in efficiency due to valve failures of the automatic type of compressor. The valves do not make a break contact with their seat. The International Compressor has extra large bearings thereby assuring long life. It is constructed of special analysis metal. It absolutely eliminates all hammering noises of the common type valve compressors. All internal friction as in rotary type compressors is entirely eliminated. Power and friction losses as in reciprocating compressors is eliminated. In the International Compressor all parts move in one direction. There is no reversal of moving parts. The International Gyratory Type Compressor is fully protected by patents and is a scientific revolution to the electric refrigeration industry.

It will pay you to get our proposition

International Oil Heating Co.
3800-10 Park Ave. Dept. ERN St. Louis, Mo.

COUPON

Gentlemen: Dept. ERN
Please Mail Free Information

NAME .....
ADDRESS .....

WILLIAMS VICTORIOUS IN DOBLE PATENT ACTIONS

Bloomington, Ill.—During the past ten years the Williams Oil-O-Matic Heating Corporation has been involved in two patent suits, the first brought during December, 1924, by Doble Laboratories, and the other filed by Electrol, Inc., during March, 1927. The Williams company was successful in both cases, the last of which was finally settled August 26th.

The suit filed by Doble Laboratories was brought against Thomas Day Company, the Williams Oil-O-Matic Heating Corporation dealer selling Oil-O-Matic oil burners in San Francisco.

A hearing was had during the month of November, 1928, and the court held that the Doble patents (No. 1,131,683 of March 16, 1915, and No. 1,359,042, of November 16, 1920), were valid and infringed by the Oil-O-Matic oil burner.

Williams Oil-O-Matic Heating Corporation took an appeal, which was heard during June, 1930, and on July 7th, 1930, the Court of Appeals reversed the decision of the lower court and held that the Doble patents, while valid, were not infringed by the Oil-O-Matic oil burner. Doble petition for rehearing was denied August 26, 1930.

The suit filed by Electrol, Inc., was brought against Merrell & Co., a dealer of Williams Oil-O-Matic Heating Corporation selling Oil-O-Matic oil burners in St. Louis.

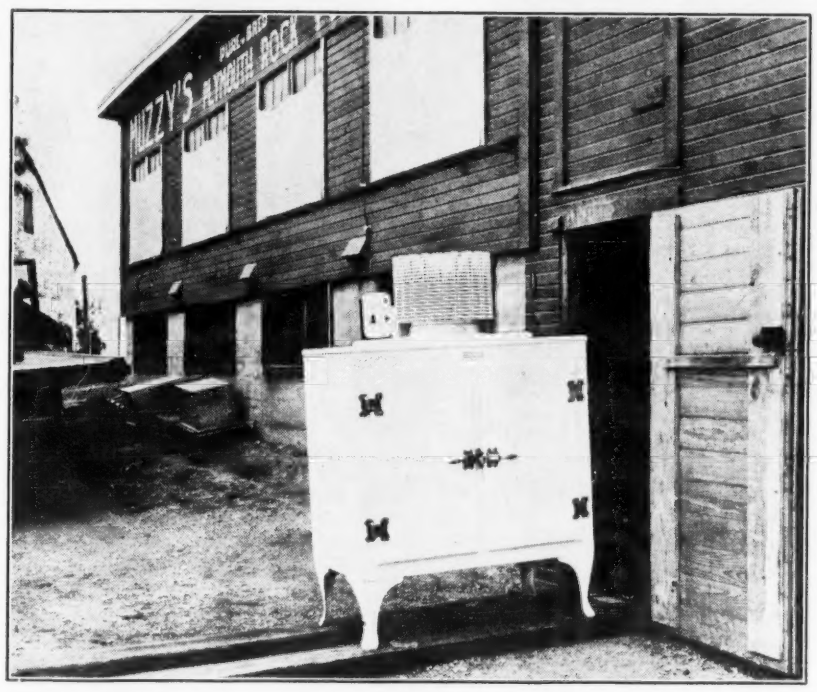
This case was heard during the last part of 1928 and the first part of 1929, and the District Court held that the Oil-O-Matic oil burner did not infringe the claims of the two patents (Scott patents No. 1,320,936 of November 9, 1919, and No. 1,602,175 of October 5, 1926) in suit, and dismissed the bill of complaint on October 17, 1928.

Electrol, Inc., took an appeal from this decision, which appeal was heard in November, 1929, and on February, 1930, the Court of Appeals affirmed the decision of the lower court.

THOMPSON LEAVES WELSBACH

Philadelphia, Pa.—Roger Thompson for the past 5 years general sales manager of refrigeration for the Welsbach Company has joined the Philco National organization in an executive sales capacity. Mr. Thompson has been identified with the manufacture and sale of appliances for 16 years, specializing in merchandising and outside retail selling. His headquarters are in Philadelphia.

Refrigerator Adds to Poultry Profits



Urbana, Ohio—Electric refrigeration is boosting the business of Wm. Muzzy, who operates a large poultry farm near this city. Mr. Muzzy raises from 8,000 to 10,000 Plymouth Rock chickens each year, and a short time ago he installed a General Electric refrigerator, G-100 model, to take care of his dressed chicken business. The refrigerator is paying for itself, as his business has increased and by dressing the chickens he is able to make an additional profit.

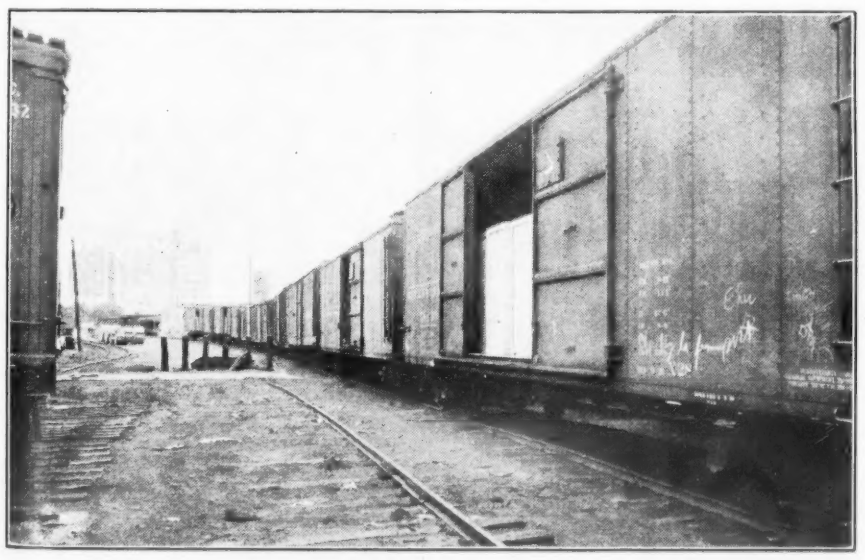
M. R. Geyer, General Electric refrigerator dealer here, ran a 40-inch advertisement in the local paper, showing how the refrigerator had helped to increase Mr. Muzzy's business, and shortly thereafter he sold a G-55 to another poultry farm near here. Mr. Geyer operates through Bard-Barger, Inc., Columbus, O., distributors.

PATENTS
Searches, Reports, Opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents - Refrigeration Engineer
342 MADISON AVE. NEW YORK

FRIGIDAIRE-SEATTLE TAKES NEW QUARTERS

Seattle, Wash.—Larger general offices for the Frigidaire Corporation have been taken in Seattle, with removal of administration headquarters from the sales and display rooms at the Securities Building, to a four-story brick building at 1222-26 First Avenue, S., in the center of the industrial and wholesale section of Seattle. This structure is now undergoing extensive remodeling for the Frigidaire staff in Seattle, where a large service and warehouse department will also be installed as soon as suitable alterations are completed.

Westinghouse Rolls In



Philadelphia, Pa.—Ten car loads of Westinghouse refrigerators arrived at the Westinghouse Electric Supply Co., Philadelphia, constituting the first shipment of Westinghouse refrigerators received in this city. An efficient dealer organization in eastern Pennsylvania and northwestern New Jersey, as well as two metropolitan distributing organizations in Philadelphia, both of which maintain the standard Westinghouse retail sales rooms, have been set up.

The Westinghouse Electric Supply Co. is rapidly getting into its stride, and although the Westinghouse is a newcomer in Philadelphia, it has made an excellent impression.

WE BUY
New and Used **ELECTRIC REFRIGERATORS**
In Any Condition
Phone, Write or Wire All Details, Type of Motor, Size of Box, Etc.
KASKEY & QUINN, Inc.
525 Arch Street Philadelphia, Pa.

TRADE MARK
EXTRA DRY ESOTOO
THE PUREST
SULPHUR DIOXIDE
Analysis Guaranteed
WE HAVE AN AGENT, WITH OUR PRODUCT IN STOCK, NEAR YOU — WIRE US WHERE WE CAN SERVE YOU
VIRGINIA SMELTING CO. West Norfolk, Va.
F. A. EUSTIS, Sec.- 131 State St. BOSTON. - 2 Rector St. NEW YORK.

Be Safe
in **Sulphur Dioxide Fumes *with the***
PULMOSAN CANISTER RESPIRATOR

No. 53 PULMOSAN Canister Mouthpiece Respirators, with flexible tubing, and positive flutter valve, give *positive* protection against SO_2 fumes.

Air-tight goggles can be supplied.

Mail The COUPON

PULMOSAN SAFETY EQUIPMENT CORP.
176 Johnson St.
Brooklyn, N. Y.

PULMOSAN SAFETY EQUIPMENT CORP.
176 Johnson St., Brooklyn, N. Y.
Gentlemen: Send us full information on your No. 53 Mouthpiece Canister Respirator.
Name.....
Address.....
(E. R. N.)

HERE IS THE AMAZING NEW STREAMLINE FITTING

for Electric Refrigeration

Providing

SEALED CONNECTIONS

Without Nuts or Flares!

The New Mueller STREAMLINE Refrigerator Fitting is a permanently tight connection for Electric Refrigeration work—a fitting actually STRONGER THAN THE TUBING WHICH IT CONNECTS—yet much lighter, simpler, more quickly completed and more economical than any previous type of refrigerator fitting.

The end of the tube is slipped into the fitting, the proper distance being made positive by a shoulder inside the fitting against which the tube rests. Solder wire is fed in through a conveniently located opening in the fitting by applying heat from the blow torch.

The solder is thoroughly distributed around the joint by CAPILLARY ATTRACTION and in a few seconds a connection is completed that is refrigerant, seepage and vibration proof.

The STREAMLINE Fitting represents a remarkable saving of time and labor, as well as giving absolute assurance that every connection is both perfect and permanent. No flaring is necessary, and there is no waste "endage." The fitting itself is lighter, meaning a considerable saving in weight. Inside diameter of the fitting is the same as that of the tubing—there are no uneven surfaces or obstructions. MATERIAL AND INSTALLATION COSTS ARE CUT APPROXIMATELY IN HALF.

Mueller STREAMLINE Refrigerator Fittings, with the exception of the couplings, are FORGED. The coupling is made of extruded seamless copper tube. Forgings being made in dies under tremendous pressure, have a dense, close-grained structure that makes seepage through the fitting itself, impossible.

Mueller STREAMLINE Electric Refrigeration Fittings can be made to suit your special requirements.

STREAMLINE Tee, copper to copper to copper
Patent 1,770,852—Other Patents Pending

STREAMLINE Coupling, copper to copper
Patent 1,770,852—Other Patents Pending

STREAMLINE Elbow, copper to outside pipe thread
Patent 1,770,852—Other Patents Pending

Mueller Brass Co.
Port Huron, Mich.
THREE GENERATIONS OF BRASS MAKING

Filtrine

Guaranteed **FILTERS** for Electric Water Coolers. *Pure, Clear Water.*

FILTRINE
MANUFACTURING COMPANY
49 LEXINGTON AVE. Brooklyn, N.Y.
Manufacturers of FILTERS & COOLERS of all sizes.

Precision Built
VALVE Needles
VALVE Seats
VALVE Mechanisms

Four years of satisfactory service to the industry

Buerk Tool Works
42 Pearl St. Buffalo, N.Y.

PATENTS

Secured for inventions relating to Refrigeration, Electrical Apparatus and Treatment and Handling of Foods and other important subjects.

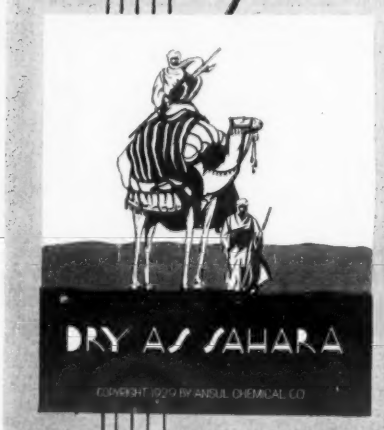
MASON, FENWICK & LAWRENCE
Patent and Trade-Mark Lawyers
Established 1861 WASHINGTON, D.C.

TRADE MARKS

E.T.L. Service for Domestic and Commercial Electric Refrigeration
Testing and experimental laboratory service for Manufacturer, Distributor, Central Station—
Test data exclusive property of client.
ELECTRICAL TESTING LABORATORIES
80th Street and East End Avenue, NEW YORK CITY, N. Y.

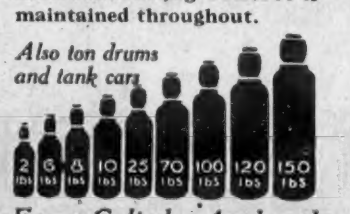
DRY DRIER DRIEST

SULPHUR DIOXIDE
for Direct Charging



"Ansul" Sulphur Dioxide is scientifically dried through a four stage dehydrating system, each stage being composed of three units in series. Absolute manufacturing control is maintained throughout.

Also ton drums and tank cars



Every Cylinder Analyzed Pure Bone Dry

ANSUL CHEMICAL CO.
MARINETTE, WISCONSIN

1 In a single remote installation, what is the maximum distance allowable from the compressor to the refrigerator?

2 What defects cause a hot suction line?

3 A certain office has 50 employees. Find the heat that must be removed from drinking water in cooling it down from a faucet temperature of 60° F. to 45° F., assuming a pipe or line leakage of 30 per cent.

Can You Answer These Questions in
ELECTRIC REFRIGERATION

THESE and all other vital points about Electric Refrigeration are thoroughly and practically treated in a new home study training endorsed by leading refrigerator companies (Servel, Kelvinator, Copeland and others). It is written by a practical refrigeration engineer—J. B. Rathbun, who has designed, installed and serviced small machines as well as refrigeration plants for the leading meat packers, over a period of 27 years.

Sales and service men ambitious for promotion and big pay—here is your opportunity to deserve it. Dealers and refrigeration company executives will find this course a helpful, ever-ready guide. Manufacturers anxious to train their staffs thoroughly are finding this course a splendid training medium.

FREE BOOK

"Rich Rewards in Electrical Refrigeration" explains course fully; also full details of easy payment plan. Get the facts without obligation. Fill in name and address below and mail to **Utilities Engineering Institute, Dept. 490 4403 Sheridan Rd., Chicago, Ill**

Name.....
Address.....
City..... State.....
Position.....

Mail this coupon to Utilities Engineering Institute, Dept. 490, 4403 Sheridan Rd., Chicago, Ill.

Fort Wayne Next Stopping Point

Milnor Men all set for trip to G. E. Plant.

Cincinnati, Ohio—Trips to and through the General Electric factories making refrigerators are proving of great value, according to those distributors who have arranged such excursions for their salesmen.

Some distributors, in sections not far from factories, have conducted contests, winners of which were given a free trip to the factories. One of the most successful of these contests was that of the Milnor Refrigeration Company here, which staged the "Milnor Presidential Special" contest.

A locomotive and five box cars, each of the latter representing a sales division, were cut out of beaver board and placed on the wall of the salesmen's conference room. Cut-outs of refrigerators were placed on the cars, the idea being a contest of divisions to unload the cars through sales. All salesmen, including those of dealers, who made their quota during two months, were entitled to the trip to the Fort Wayne factory. Forty-seven made the trip in two chartered buses.

At the factory, guides were furnished and the men were conducted through the factory in groups of six and seven, all operations in making the refrigerating unit being explained in detail.

A banquet marked the first evening at Fort Wayne, talks being made by Clark Orr and others of the engineering department. The following day the men were conducted through the commercial department, where they saw the large commercial unit, the water cooler, and ice cream cabinet being built.

G. E. Salesmen Made Short Work of Unloading the Milnor Special.

GLUECK FORCE FROLICS AT BIRTHDAY FESTIVITY

Kansas City, Mo.—The sales and office force of Glueck & Co., General Electric distributor, celebrated the third birthday of the company with a picnic at a private clubhouse.

More than a hundred employes enjoyed the day which had all the usual picnic attractions, such as a big dinner, baseball game, golf driving, horseshoe-pitching, nail driving (by the ladies), sack races and the rather unusual event of a terrapin race. A crate of trained terrapins was imported from Kansas for the occasion, and cash prizes of $5, $3 and $2 offered for the winners. "Gallant Fox," with true terrapin alacrity, shuffled over the line first. Gallant Fox was the choice of M. Baum, retail salesman of General Electrics for the Glueck & Co., Kansas City, Kan., store.

One G. E. dealer, Tommy Atkinson of the Atkinson Armature Co., Pittsburg, Kan., flew to the picnic in an airplane.

REFRIGERATION PRODUCTS, LTD., TO DISTRIBUTE TEMPRITES

Los Angeles, Calif.—A new company known as Refrigeration Products, Ltd., has been formed to engage in wholesale distribution of electric refrigeration equipment.

J. A. McLaren, recently sales manager for the Universal Cooler Company in Canada, has been appointed general manager of the new company, with offices and display rooms in Los Angeles, San Francisco and other large coast cities. Mr. McLaren has a number of years' experience in electric refrigeration. His plans call for a complete organization of refrigeration men, specially trained in sales, service, installation and engineering.

Refrigeration Products, Ltd., will distribute a number of well-known products, such as evaporators, fittings, controls, compressors, and refrigeration accessories in general.

The Liquid Cooler Corp., Detroit, manufacturers of Temprite coolers, has granted exclusive distributive rights to the Refrigeration Products, Ltd. The Temprite line of water and beverage coolers was one of the first to be taken on by this new concern, and a complete line of models is carried in stock.

REFRIGERATION IN FRONT AT EASTERN EXPOSITION

Springfield, Mass.—Electric refrigeration was conspicuously in evidence at the Eastern States Exposition here, Sept. 15 to 20. Four booths were allotted to the various models of the Westinghouse Refrigerator, Wetmore-Savage Co., New England distributors, handling the exhibit. One end of the enclosure was occupied by the Automatic Oil Heating Co., Springfield dealer for Westinghouse, who also showed an oil burner. Miss Grace Hallowell, of Boston, gave talks on the advantages of the refrigerator. A large household model also was exhibited in the booth of Standard Brands, Inc., where the uses of Fleischmann Yeast were presented.

General Foods Corp. made an exhibit of Birdseye Frosted Foods in a large Hill Dry-Cold case of special design, having a Lipman patented coil and employing ammonia as refrigerant. This is a new model built by C. V. Hill & Co., Inc., of Trenton, N. J., with the counsel and coöperation of General Foods representatives. It has extra heavy plate glass in the display case and galvanized steel drawers for storage. A large-sized Hill Dry-Cold case, suitable for the delicatessen trade, was in use in the Handy Foods booth, for exhibiting cured meats made by the H. L. Handy Co. of Springfield. This case had Frigidaire equipment.

General Electric refrigerators were displayed in a double booth of the Electric Device Co., distributors for this territory. The commercial and household models were shown. Among the rest was a case containing Swift & Co.'s identifiable cuts of hard-chilled meats.

ASIATIC MANAGER CONFERS WITH OFFICIALS

Detroit, Mich.—John F. Stevens, Jr., Asiatic manager of the Kelvinator Corporation, is now here, conferring with the Export Division on matters appertaining to his vast territory, which covers the whole of Asia.

He is the son of John F. Stevens, who was in the Far East as head of the American Railway Commission to Russia in 1917 and 1918, and president of the Inter-Allied Technical Board supervising the Trans-Siberian Railway from 1919 to 1923.

John F. Stevens, Jr., has followed in his father's footsteps in pioneering work. He has been interested in modern electric refrigeration for the last eight years. He introduced the Kelvinator to the Far East in 1923, when he established display rooms as distributor in Shanghai, China. Four years later he joined the Kelvinator Corporation, and has been engaged ever since, as Asiatic manager, in establishing distribution connections.

Discussing the work in his distant territory, Mr. Stevens said, "The field in Japan is absorbingly interesting, as the standard of living is constantly rising and permits of the introduction to this part of the world of the most modern household and commercial appliances. This is especially true of the Japanese, who are attaching increasingly great importance to all matters pertaining to hygienic protection and economic production."

Mr. Stevens has had some interesting experiences in the Orient, which add zest to the average technical sales work, such as the installation in the King of Siam's new seashore palace at Hua Hin, covering the entire refrigeration needs, and that of the Maharajah of Bikinir, whose country is just south of Delhi. The Maharajah had installed in each of his palaces the largest electrical refrigerators which the Kelvinator Corporation produces, and had installed, under Mr. Stevens' supervision, 28 large size Kelvinators for his domestic establishments.

NORGE IN NEW BOSTON SHOWROOM

Boston, Mass.—A large new showroom has been opened by the General Equipment Corporation of Boston, at 885 Commonwealth Avenue, for the display to dealers of the new models of Norge refrigerators, for which the company is New England distributor. J. G. Waddell, president of the corporation, says that in the last year and a half, since the company took over this line, the metropolitan distributor, the Boston Norge Sales Corporation, has made more than 2,000 installations in Boston.

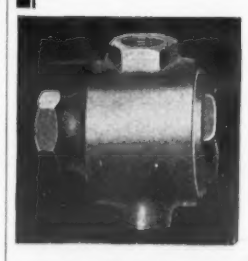
precision built

Specializing in
Refrigeration Compressor Eccentric *and* **Crank Shafts**

Made to your specifications. Send us your blue prints—we'll send you our prices.

Modern Machine Works, Inc.
195 Milwaukee St., Dept. C, MILWAUKEE, WIS.

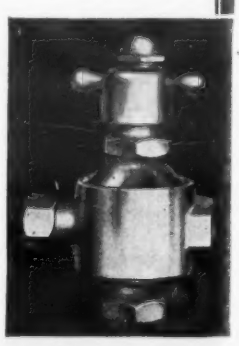
Regulate Height of Drinking Stream
and eliminate water waste with
"EBCO"
SELF-CLOSING AUTOMATIC
Stream Control Valves



REGULATOR
for installation in water supply lines to present fountains ⅜" I. P. Inlet and Outlet.

A constant drinking stream which never varies in height or volume regardless of any pressure variation in the water lines, is assured when drinking fountains are equipped with EBCO Valves.

Automatic control of the stream height is guaranteed under all fluctuating pressures between 20 and 120 points. The "EBCO" valve insures economy and eliminates objectionable squirting.



EXPOSED TYPE
Chrome plated union inlet—⅜" I. P. outlet.
C-1300 2-prong handle.
C-1300 H-¼ prong handle.
C-1300 L-Lever handle.

Write for Complete Catalog of EBCO Valves and Drinking Fountains.

THE D. A. EBINGER SANITARY MFG. CO.
COLUMBUS, OHIO
Manufacturers of EBCO Drinking Fountains, Ventilated Urinals and Closets, Round Wash Sinks and Steel Compartments for toilet rooms.

FIRE FAILS TO FRIGHTEN FAITHFUL REFRIGERATORS

TIME was when the fact that a refrigerator had survived a fire was real red-hot news. In the last couple of years, however, the sturdy products that the refrigerator manufacturers have been passing on to the public have demonstrated again and again that a fire, a conflagration, or even a holocaust, are little things that should be politely ignored by any self-respecting refrigerator.

On the other hand, the owners of these modern salamanders, not being endowed with the same ability to keep cool when things begin to pop, feel that when their refrigerators come through a fire unscathed the general public is entitled to know about it. So be it.

Atlantic Highlands, N. J.—A refrigerator was the sole survivor of a fire here that destroyed a restaurant which nestled close to a garage, and suffered in direct ratio to its distance from the gasoline tanks which took an active part in the torrid proceedings. The big Seeger cabinet was found among the ruins when the fire was extinguished, and when the doors were opened, the food within was found to be in perfect condition, the butter was hard, and a block of ice was reposing under the coil. An examination of the operating unit, which was mounted under a slate sink, showed that it had done its work until the wiring was burned through.

The exterior of the box was warped out of shape and the porcelain doors were chipped and smudged. Some 14-inch girders were warped and twisted by the heat, so the survival of the refrigerator seemed all the more remarkable.

So remarkable did it seem to a little group of men who examined it, that they prepared a statement of what they had seen and swore to it before a notary. The signers of the document were: Benjamin Jennings, president, Ideal Radio Company, the organization which sold the refrigerator; Lucius O. B. Emerson and William M. Goslau, sales manager and service manager of the same organization; Ralph W. Carr and Grandin W. Chapman, one of the owners of the burned building.

Came the Dawn

The Big Seeger Box in this ill-fated restaurant not only survived the flames, but kept its contents cold. A big piece of ice was found inside.

Sparta, Ga.—The Sparta branch store of the Georgia Power Company is proudly displaying two General Electric refrigerators that survived the disastrous fire which recently destroyed the old store and its contents.

Not only did the refrigerators refuse to bend or warp under the heat of the fire, but when recovered twelve hours later, the trays were full of ice, and the inside temperatures below 50 degrees F.

The Georgia Power Company, which is noted for its ability to capitalize matters of great popular interest, ran display advertisements in the Atlanta newspapers, showing pictures of two refrigerators which survived the flames, followed by cleverly-written tie-in copy which used the fire to emphasize the merits of the G. E. domestic units.

NEW G. E. BRANCH OPENED IN BIRMINGHAM

Birmingham, Ala.—A branch store located at 1817 First Avenue, North, has just been opened by Maddox & Hawkins, General Electric dealers. The main store of the company is located at 2011 Third Avenue, North.

Refrigerators Tested • Both Ice and Mechanical Refrigerators Tested for Performance in our Refrigerator Laboratory. This service is unique for the Manufacturer or Distributor.

We invite your inquiries.

George B. Bright Co.
Regrigerating Engineers and Architects
2615 12th Street, Detroit

REFRIGERATION RUBBER WARE

Manufacturers of molded insulation for commercial and domestic refrigerator cabinets. Materials and parts developed to meet the exacting requirements of refrigeration efficiency.

THE AETNA RUBBER CO.
ASHTABULA, OHIO

BUHRING WATER PURIFIERS

have been sold since 1891. During these 39 years they have been imitated in appearance, but never equalled in quality and performance.

GUARANTEED to remove taste, color and odor

For Information Write

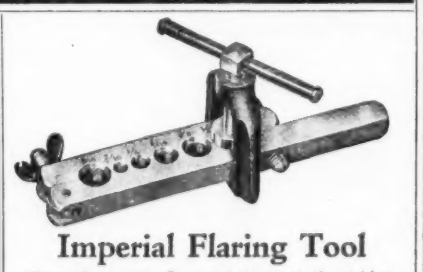
BUHRING WATER PURIFYING CO.
40 Murray St., New York City
REPRESENTATIVES: Allen-Buhring Water Purifying Service, Chicago, Ill.; Boston Filter Co., Boston, Mass.

Imperial

Aids To Better Installations

Imperial Tube Cutter

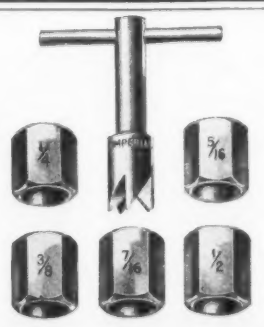
Here is a highly efficient tool for cutting copper, brass, block tin and lead tubing. It takes all sizes of tubing from ⅛" to ⅝" and makes a right-angle cut, quickly and cleanly, leaving no burrs or chips to clog the line. The tubing does not become out of round as when put in a vise. When this tool is used tubing can be cut in half the time required by old methods and a far better job results. No. 94-F Tube Cutter, each $2.50



Imperial Flaring Tool

Gives the proper flare and taper to the tubing for making up joints. A perfect flare means a tight joint and this tool does the work in least time and with utmost simplicity. No loose dies — no vise necessary. No. 93-F takes tubing sizes 7/16", 3/16", ¼", 5/16" ⅜", and ½", each $3.00

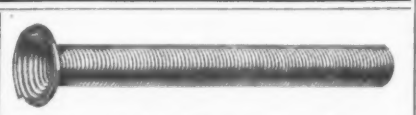
No. 95-F takes tubing sizes ¼", 5/16", ⅜", ½" and ⅝", each..... $4.00



Imperial Refacing Tool

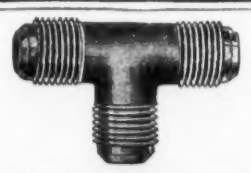
This new tool insures against leaks caused by S. A. E. couplings that do not seat properly. In use, the coupling is inserted into the correct adapter, then a few turns of the five-fluted hardened steel refacer produces a faultless seat of correct size and taper for a tight and leak-proof joint.

No. 100-F Refacing Tool with adapters for sizes ¼", 5/16", ⅜", 7/16" and ½", Per Set $3.75



Imperial Tube Bender

Just slip this tool over the tubing where the bend is to be made. Then bend both tube and coil by hand to whatever form desired. Seven Tube Benders comprise a complete set. No. 101F Tube Bender Set for tubing sizes ¼", 5/16", ⅜", 7/16", ½" and ⅝". Per Set $2.75



Imperial Brass Forgings

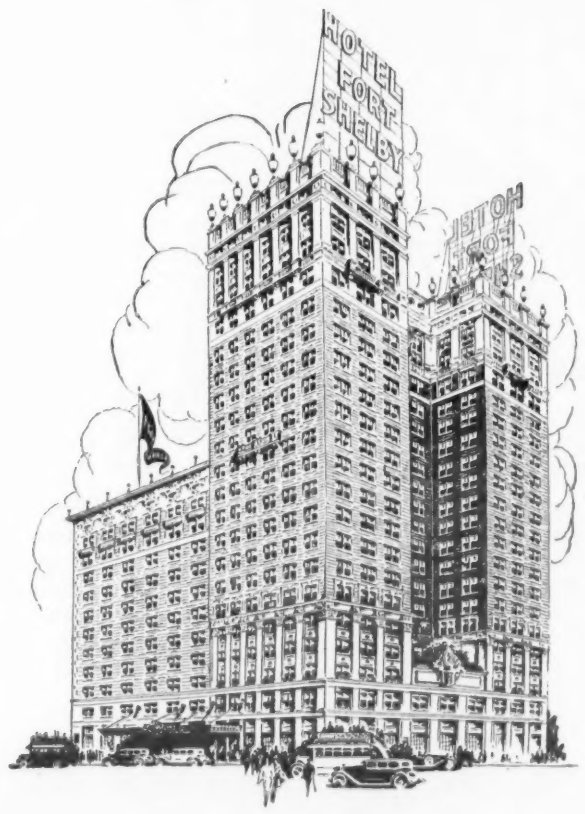
Accurately made to meet all the requirements of Iceless Refrigerator Manufacturers. Will not leak. Let us quote on your requirements.

Send for New Catalog

The Imperial Catalog, just off the press, illustrates and describes the complete Imperial line of Brass Forgings, Valves, Manifolds, Tools, etc. To become acquainted with the newest and most modern, send for this catalog today. It's free.

THE IMPERIAL BRASS MANUFACTURING CO.
565 SOUTH RACINE AVE. - - - CHICAGO, ILL.

So you're coming to DETROIT?



Wire and we'll make ticket reservation for you to theaters, concerts and sporting events—we'll have them ready when you arrive. Hotel Fort Shelby offers the dual advantage of a hushed, peaceful environment . . . and immediate proximity to the financial, theatrical and shopping centers of downtown Detroit. 900 attractive rooms—Servidor equipped. $3.00 per day and up. Write for direct motor route.

J. E. FRAWLEY, *Managing Director*
E. J. BRADWELL, *Manager*

HOTEL FORT SHELBY

LA FAYETTE *at* FIRST, DETROIT

LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other material recently issued.

Manufacturers are requested to send copies of new trade literature to Electric Refrigeration News.

Electrol, Inc., 227 E. 45th St., New York City, manufacturers of the Electrol oil burner, now has available copies of an interesting booklet, entitled, "The Terrible Tempered Mr. Bang Throws Away His Coal Shovel."

The Famous Toonerville Trolley cartoonist, Fontaine Fox, gives his story of the advantages of automatic oil heating in the language of the Toonerville folks. Anyone reading this introduction by Mr. Fox will be impressed with the humorous way he has described the advantages of oil burners. There also is a serious side to the book.

NEW INSTRUMENT FOR TESTING BRINE

Chicago, Ill.—A new instrument known as the Calci-Chlor-o-Meter has been developed by E. Edelmann & Company, 2332 Logan Blvd., Chicago, Illinois.

In making a calcium chloride brine solution test it is necessary with the ordinary hydrometer to wait either until the mixed calcium chloride cools down to 60° F., or if taken directly out of the tank, it is warmed up until its temperature is 60° F. The Calci-Chlor-o-Meter eliminates the necessity for such delay because it is a complete instrument containing an inbuilt thermometer and a table indicating freezing resistance of the brine itself. With a Calci-Chlor-o-Meter the true freezing point of any calcium chloride brine can be instantly and accurately ascertained at any temperature from 20° F. to +120° F. Operation of the instrument is very simple because it is made in a convenient syringe form. Rubber bumpers make it durable, easy to handle and a loop is provided so that the instrument can be hung up.

A unique feature of the Calci-Chlor-o-Meter is the method of reading the thermometer. The thermometer occupies a separate barrel all to itself and is so arranged that the bulb of the thermometer is constantly immersed in the tested solution, although the actual scale is never obscured because no liquid enters the barrel in which the thermometer scale is contained.

BOSTON EDISON DISPLAYS NEW YUKON KELVINATOR

Boston, Mass.—Kelvinator Sales Corporation, representatives of Kelvinator Corporation of Detroit, is conducting an extensive advertising campaign to introduce the new Yukon low price refrigerator throughout the Boston metropolitan territory. They are placing them at retail through the Edison shops of the Boston Edison Electric Illuminating Company, which has 31 such sales shops. Sales are being financed by the Edison organization through a small down payment, with the balance in stated amounts on the monthly electric light bill.

COOLED WATER FOR NEW FACTORY

Elizabeth, N. J.—The new factory of Thomas & Betts Company has been equipped throughout recently with the latest model Filtrine water coolers. Model 1-C-1 Filtrine coolers, equipped with Servel 14A refrigerating machines, are being used to serve 400 employees.

EASY MONEY

San Antonio, Tex.—Employees of the San Antonio Public Service Co. recently lined their pockets with extra cash by submitting names of prospects for electric refrigerators to the company's commercial department. For every one of these prospects sold within 30 days, the employee furnishing the name received one dollar.

Frigidaire Marches By

Dairen, Manchuria—The Japanese distributor in this section, Harada & Company, has found a new method of introducing the story of electric refrigeration to Manchurian prospects. To acquaint the populace with Frigidaire automatic refrigeration, a parade was put on which treked its way through the principal streets of the Oriental city. It attracted much attention, as the refrigerators showed the tendency to enjoy the job of pounding the pavement instead of monotonous task of supplying refrigeration. The refrigerators, or replicas, in other words, are each inscribed with Japanese characters to spell "Fu-Ri-Gi-De-A Den-ki Reizo-ki," which means "Frigidaire Electric Refrigerators." The two characters leading off the parade no doubt served as the opening wedge and drew bystanders' attention.

FOUR KEROTEST OUTLETS ANNOUNCED

Pittsburgh, Pa.—Four sales representatives for Kerotest forged brass valves and fittings have recently been announced by the Kerotest Manufacturing Co. of this city. Van D. Clothier, 224 East 11th St., Los Angeles, will represent Kerotest in lower California, while A. W. V. Johnson, with offices in the Merchants Exchange Bldg., San Francisco, will cover upper Californian territory.

Fretz Brass & Copper Co., 523 Arch St., Philadelphia, Pa., will distribute Kerotest products in the Philadelphia territory. The Brass & Copper Sales Co., 2817 Laclede Ave., St. Louis, Mo., will represent Kerotest in that territory.

Kerotest is planning to establish distribution points in four or five more large cities in the near future.

LOW PRICES FOR BALTIMORE STOCK OF REFRIGERATORS

Baltimore, Md.—The Howard Refrigeration Sales Corporation, of Baltimore, Md., which was recently organized and incorporated for the purpose of generally dealing in refrigeration apparatus and allied lines, has opened a store at 406 Howard Street, in which it is offering a large stock of electric refrigerators at less than half of original prices, from $94.50 and up.

MATTHEWS DRIVING FOR APARTMENT ORDERS

Birmingham, Ala.—Special emphasis is being placed on apartment house installations at the present time by the Matthews Electric Supply Company, state distributors of General Electric. A number of apartments have recently had installed in them General Electric units sold by the Matthews Company.

WESTINGHOUSE EXPANDING IN CONNECTICUT

New Haven, Conn.—Connecticut Electric Refrigerating Company, Inc., 149 Temple Street, Westinghouse distributors for Connecticut, has recently added the following dealers in the territory: Northern Connecticut Power Company, Thompsonville; Winsted Gas Company, Winsted; C. E. Foerch, Madison; John E. Daly, North Colony Street, Wallingford, and the Howland Dry Goods Company, Main Street and Fairfield Avenue, Bridgeport.

The Expansion Valve

By GEORGE F. TAUBENECK

Sage and cynical observations on the unrefrigerated air put out by husbands and salesmen, gleaned from an essay submitted by Lucy E. Bliss to a contest sponsored by the Electric Refrigerator Co. of New England (headquarters at Boston):

"Salesmanship, like a prospective husband, is full of rosy hope and optimism. And both will promise you plenty. But after the ceremony, and after the first payment, illusion bows to facts."

There's just one answer we can hurl back at the discerning Mrs. Bliss in a futile attempt to regain our lost feathers. We suggest she read what Schopenhauer (disgruntled philosopher who was married three times) says about her sex in his "Studies in Pessimism." But, being a woman, she'd probably have a comeback for Mr. Schopenhauer that would make that dyspeptic's vinegared words seem like mush and milk. At any rate, we'll lay heavy odds she'd have the last word. And why not?

A man who practices what he preaches is S. A. Brulard. Inasmuch as he is in charge of the Customers' Accounts and Cashier's departments of the Gulf States Utilities Co., at Beaumont, Texas, he is in a fine position to spread the story of the advantages of the home electrified.

Believing what he tells his customers, Mr. Brulard has in his home a Sepeo 18-gallon automatic electric water heater, a Westinghouse full-automatic electric range, and a General Electric refrigerator. Other electrical equipment in the Brulard home includes an electric sewing machine, a radio, an electric vacuum cleaner, an electric toaster, an electric percolator, an electric waffle iron, and an electric kitchen mechanic.

Another multi-range user of electric appliances is James Jensen, of Arpin, Wisconsin. Ethel Nelson, who works for the Wisconsin Power and Light Co., is authority for the statement that Mr. Jensen has an electric range, electric refrigerator, electric water system, and various smaller appliances, including an electric cradle rocker.

He doesn't stop with marketed electric merchandise, however, but exercises his own fertile ingenuity to make the little indicators on his light meter go 'round and 'round. Evidence and exhibit A: an electric lawn mower.

Mr. Jensen removed the gears from the wheels of his lawn mower, and mounted a one-fourth horse power washing machine motor on the top. An extremely long extension cord connects this dingfod with an outlet in the house.

It runs so easily that his small daughter can now mow his large country-home lawn without experiencing any more fatigue than she would over a game of jackstones—if little girls still indulge in that nonpareil pastime.

A refrigeration salesman leads a dog's life, some members of that fast-stepping clan will tell you. Yet few of them, in making their dogged rounds from doorbell to doorbell are so disconcertingly reminded of their canine affiliations as to be tendered dogs in payment for refrigerators.

Just to demonstrate that all things are possible in this surprising business, we have for your approval, not one, but two, yarns which center about the acceptance of police dogs as down payments.

The first to reach our ears (which appendages, thanks to the job of running this kolyum, are expanding as rapidly as the industry itself) concerns the fourth cousin of Strongheart, famed "barkie" star.

F. H. Lundgren, Frigidaire salesman in Des Moines, Iowa, accepted this animal with so distinguished a lineage as the first payment on a household unit. The dog was presented to his boss, W. A. Trolan, who promptly named it "Frigie."

Dog story number two emanates from W. L. Tyson, southeastern district sales manager for the Servel organization. This gentleman, accompanied by a commercial salesman from the Spurrier Lumber Co., of Tulsa, Oklahoma, recently sold a Servel compressor and three Larkin coils for installation in a freezer case and grocer box. In addition to some cash, three (the first story-teller never has a chance) German police dogs were taken, and the customer credited with $15.00 for each.

A postscript to this tale: Upon taking inventory, the Spurrier Lumber Co. found only two dogs about their premises. Rumor has it that the other is now responding to Mr. Tyson's whistle.

Our idea of a small sport is the fellow who sidled up to a Detroit miniature golf course in a Bantam Austin the other day. Our idea of a big-time sport is anybody who would place a bet on an unknown horse in a race against Gallant Fox and Whichone.

James J. O'Neill, of 583 215th Street, New York City, conforms with our notion of sporting magnitude. He placed a dollar on Jim Dandy when the odds against that surprising quadruped were 100 to 1. Obligingly Jim Dandy left Gallant Fox and Whichone snorting in disgust on the Saratoga track, and Mr. O'Neill excitedly collared his bookie and collected one hundred plunks cash.

Did the lucky Irisher decide he was the master-mind the world of checkered vests and inside tipsters had been awaiting, and lose his hundred on succeeding races—even as you and us? He did not. Making a bee-line for 265 Fourth Avenue, where they sell G. E. refrigerators, he converted his winnings into a down payment on the modern method of food and health preservation. Page the old wiseacre who said: "Easy come, easy go!"

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance — Positions Wanted — fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

POSITIONS WANTED

AVAILABLE shortly. General or sales executive. Background of 11 years' refrigeration experience in sales, manufacturing and engineering. Domestic and commercial types. Automotive experience in like divisions for several years previous. Company change in policy necessitates new connection. Can furnish very satisfactory references. Box 280.

WANTED POSITION — With distributor or dealer. Five years' experience in commercial refrigeration as application engineer and sales supervisor. Capable of organizing and directing a producing sales force. Now employed but interested in an opportunity. Excellent record and references. Copeland preferred. Age 32. Box 279.

MISCELLANEOUS

LARGE Canadian Retail Organization would like to get in touch with manufacturer of high-grade compressor unit which can be assembled and marketed under company's trade name. Send complete descriptive data to Box 281.

FOR SALE — Fedders Evaporators Type E-4. We have about 100 of these units which we will sell at half price. Box 278.

The Imitation Food Products Co.

(Branch of The Artistic Production Co.)

107 Lawrence Street

Brooklyn, N. Y.

Ask for our catalog of January 1, 1930. Direct sales only. "Indispensable with refrigerator display."

SEEPAGE PROOF FITTINGS

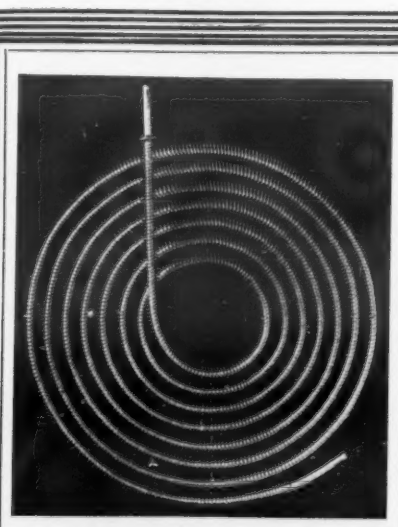
ALL combinations of pipe and tube ends in the most complete line of fittings on the market for Automatic Refrigeration.

Send for Catalog No. 36

COMMONWEALTH BRASS CORPORATION

Commonwealth at G. T. R. R.

DETROIT



Specify ROME-TURNEY CONDENSERS

Made of heavy gauge deoxidized seamless copper tube. One-piece construction. High efficiency. Designs for all requirements and conditions.

Rome-Turney Radiator Co.

ROME, N. Y.

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Refrigerated Food Section

In Three Parts—Part 2

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

ISSUED EVERY TWO WEEKS
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FRUITS

Of Freezing Experiments Will Be Sampled By Guests At Georgia Conference

Experiment, Ga.—A frozen fruit conference will be held here by the Georgia Experiment Station on Friday, October 10. Invitations have been sent by Dr. H. P. Stuckey, director of the station, to persons who have coöperated with the staff in the freezing experiments which have been carried on during the last few months, and a few others who are interested in the development of frozen fruits and vegetables. About forty persons have been invited.

As part of the program some of the products which have been frozen under the direction of J. C. Woodroof, associate horticulturist, will be opened and sampled. Those present will be invited to join in a discussion of the problems which have come into prominence, and it is expected that some valuable contributions will be made to the development of freezing as a method of preserving foodstuffs. Several authorities on the subject are to be present.

The work that has been under way here was described in the June 4th issue of the Refrigerated Food Section. In the concluding paragraph of his letter of invitation to the forthcoming conference, Dr. Stuckey makes the following conservative statement:

"We believe that our collection of samples of frozen fruits, which will be exhibited at the conference, covers a wider range of temperatures, types of containers and novelty packs than any collection ever assembled. We are anxious for those interested to pass judgment on the packs prepared and to suggest future lines of work."

The suggested schedule for the October 10 conference follows:

9:30 A. M.: Assemble in the library of the Experiment Station where the activities of the day will be explained by Director H. P. Stuckey.

10:00 to 12:00 A. M.: Examination of the samples of frozen fruits in the by-products laboratory.

12:00 to 1:00 P. M.: Luncheon served in grove at Experiment Station.

1:00 P. M.: Assemble in the library for discussion of the problems of fruit freezing and to outline future experimental work. The discussion will be led by Mr. J. G. Woodroof, associate horticulturist of the Experiment Station, and participated in by several of the coöperators. The following topics will be of interest:

Containers for Frozen Fruit.

Temperatures for Freezing and Storing Frozen Fruits.

Transportation Equipment.

Factors of "Quality" in Frozen Fruit.

Acknowledgment of Coöperating Agencies.

Listing Problems Which Need Immediate Solution.

NEW ITEMS

Round Out Line in Muncie

Muncie, Ind.—Several new items have been added to the line of Sally Lee quick-frozen meats which are being sold in six Muncie stores. The success of the campaign thus far has developed a demand for a wider variety of products, and the Indianapolis Abattoir, Inc., producers of the Sally Lee line, have added sausage, rump roast, boiling beef and stewing lamb. The original list of Frigid Meats put on sale when the campaign began on August 1 included more than thirty items.

A second grade of meats, which will be sold at prices twenty-five per cent cheaper than the meats now on sale, is being prepared.

Work also is under way on a larger refrigerated case than those in the stores at present. It will utilize electric refrigeration instead of solid carbon dioxide, and will provide for self service.

COOLING OFF THE CAKES

New Britain, Conn.—A walk-in cooler with Frigidaire ½ h. p. unit, N compressor and 570 F coils, has been installed in Hoffman's Bakery, 144 Main Street, by the Connecticut Light & Power Company. The cooler was especially designed for the storage of frosted cakes, which require a comparatively dry, cold atmosphere for keeping, especially during the summer months.

TIME TO MOVE

MARION HARPER, vice-president of General Food Sales, in discussing the Springfield sales campaign, says: "The Springfield test opened as an experiment. It closed as an established success." He might have gone further and said that, although the campaign may be over, sales of Frosted Foods are proceeding merrily on. It must be about time for General Foods to announce its next move in the promotion of the Birdseye products. Some time ago it stated that the work would be carried on elsewhere in New England.

Plenty of Interest

Indianapolis, Ind.: One result of the Frigid Meats sales campaign, now being conducted in Muncie by the Indianapolis Abattoir, Inc., is an order for a sample shipment of the quick-frozen meats, which has come all the way from Montevideo, Uruguay. Although this particular inquiry holds the long distance record, it is by no means the only one received. Those in charge of the campaign spend considerable time opening letters from retailers who are anxious to know all about the frozen products and under what arrangements they can be obtained.

NEXT IN LINE

WITH New Orleans next on its list of cities in which its Nordic fish steaks will be sold on a city-wide basis, the Atlantic Coast Fisheries are bravely invading a community that knows and appreciates good fish. Food retailers in the southern city will have an opportunity to carry a new product that promises to prove popular. Frozen products require refrigeration if they are to be handled properly. New Orleans merchants with adequate refrigeration will have the best chance to turn the frozen fish steaks into cool profits.

Telling the Story

Fresh Caught in Deep Cold North Seas

...and brought to you the NEW WAY

QUICK FROZEN Yes! But more than that. In Nordic Fish Steaks, all the natural juices of the fresh-caught fish are *sealed in* first! Then the tender meat is quick frozen and exquisitely packed with the utmost care that modern science makes possible. All within two hours after the big choice fish have been landed!

SWIFT TRAWLERS of the Nordic fishing fleet bring in Nordic Fish from the cold northern seas where the finest tasting fish in the whole world is caught.

A finer tasting fish with all its FRESH-CAUGHT SAVOR kept!

FOOD EXPERTS call it the most thrilling bit of progress in a quarter of a century.

Magazine pages are full of this *New Way* of delivering quick-frozen food to you with all its fresh savor—all its nutritive value. At every step, perishable food is protected against the dangers of careless handling.

To give you an idea of how revolutionary this new method is—you can now buy the finest tasting ocean fish in the world right here in town ... at your own butcher's shop.

Isn't that a miracle of modern science?

Just ask for Nordic Fish Steaks. Your butcher will hand you an attractive cellophaned package. Yes, it's two fish steaks ... rounded and all ready to pop into the frying pan. Notice their pink and white color—always a sign of freshness.

They're quick frozen! To many women there's still a great fascination in watching frozen fish turn into tender, juicy steaks in the frying pan. But it's the Nordic way of sealing in the natural juices *before* quick freezing that makes these steaks taste like fresh-caught fish when they reach your table.

Fish brought to you this new way has a finer flavor and greater food value than any other fish you have ever tasted.

Try it this week. Give your family the most delicious fish dinner they've ever had.

NORDIC FISH is the pride of every woman who has cooked it herself. Such juiciness! Such flavor!

NORDIC FISH STEAKS

[ON SALE THURSDAYS AND FRIDAYS AT ALL MEAT MARKETS]

The Tobin Food Co., Inc., 111 Tracy Street, Syracuse, N. Y., Distributor

Syracuse newspapers carried this advertisement announcing opening of Nordic sales campaign.

MOVING

Laboratory Rolls On Eastward

Chicago, Ill.—The first transcontinental fruit transportation laboratory has reached Chicago. It came in over the Great Western on September 23. The laboratory, which consists of a 52-car train of citrus fruits, destined for Chicago, New York and other eastern points, left Colton, California, at 9:30 a. m. Wednesday, September 16, on a schedule which called for its arrival in Chicago in 146 hours.

Riding with the train in a special car are four ventilation and temperature experts of the United States Department of Agriculture: C. W. Mann, W. C. Cooper, R. J. Asbury and J. G. Gray, and four representatives of the Pacific Fruit Express Company. En route they are making continual tests and recording the efficiency of refrigeration and ventilation equipment. Accurate control of these factors is of primary importance in the long distance shipping of all perishables, and it is anticipated that the series of tests on this trip will yield results important to shippers of food products.

At Council Bluffs R. B. Croll, superintendent of transportation for the Great Western, and Division Superintendents S. V. Rowland and C. J. Kavanagh got aboard and conducted the party over their respective divisions. Including a re-icing stop at Oelwein, Iowa, this leg of the journey took approximately 24 hours.

A part of the trainload went to the Chicago market for Middle West consumers, and the rest was delivered by the Great Western to the Erie for transportation to the East.

The 146-hour schedule on which the laboratory train moved from California to Chicago is the regular schedule for perishable freight. Its time is exceeded only by the fast silk trains which carry Oriental silks from Pacific ports to the east. But whereas silk moves in 4 to 12 car trains, using express and passenger equipment, perishables move in 40 to 50 car trains, using regular freight equipment, and numerous stops must be made for re-icing cars.

Colton, California, which serves the southern part of the state, is one of the three principal concentration points from which western citrus fruits move into the eastern markets.

FAIRGOERS

Inspect Birdseye Frosted Foods

Springfield, Mass.—"What will they do next?" exclaimed an elderly woman in wonderment and awe after a scrutiny of the Birdseye Frosted Foods display at the Eastern States Exposition, Sept. 15 to 20. The big annual fair which includes exhibits from many states brought people from remote sections who had never before heard of quick-frozen products. Their comments showed that they were strongly impressed by the new development. It was even more interesting to those in charge of the exhibit, however, to learn how many of the persons from a distance had come to know about the Birdseye line through the widespread publication of information sent out from this city and New York.

A check was kept on the states and municipalities whence these interested visitors came, and the facts will be tabulated. Verbal information was given about the system and the various food items and thousands of circulars were handed out. Among those who found their way to the booth were merchants and store managers desirous of information. Many of them visited the Springfield stores where the frozen products

(Concluded on Page 3, Column 5)

MERIDEN

Merchant Sells New Frozen Meats

Meriden, Conn.—Frozen meats have made excellent progress in Meriden since their introduction three months ago by the grocery firm of Fred L. Yale & Son, 300 East Main Street. The Yale store is one of the few retail establishments in Connecticut known to have the new cuts on public display.

E. Elwood Yale, proprietor of the Meriden store, became interested in the quick-frozen cuts largely because his grocery and delicatessen customers were urging that he handle meats. To accommodate these customers, he had been in the habit of sending out to butcher shops for meat to fill out orders. This, of course, entailed no profit and a considerable loss of employees' time.

The Yale display case is a 12-foot Lig-O-Nier with Frigidaire unit. Only about half of the space is used for the frozen cuts, the remainder being devoted to delicatessen goods. At night the cuts are removed from the case and stored in a Frigidaire ice cream freezer, where the surplus frozen stock also is kept.

The Yale store handles only the Swift identifiable line at present. The Meriden branch of Swift & Company reports scattering sales of the frozen cuts to stores and markets in the territory, but that the branch's best identifiable cuts customer is Mr. Yale. Several stores in the larger cities carry quick-frozen meats. Meriden has a population of about 40,000.

Hamburger steak has proved the best seller among the frozen meats to date, Mr. Yale reports. Club steaks and pork chops rank next in popularity. Other cuts carried by Yale include round steak, club, porterhouse and sirloin, veal cutlets, beef for stew, pot roast, rolled rib roast, standing rib roast, veal chops,

(Concluded on Page 3, Column 1)

NORDIC

Fish Steaks Go On Sale In Stores in Syracuse and Surrounding Towns

Syracuse, N. Y.—A wave of seafoam green splashed itself across the windows of the food stores of Syracuse on Thursday, September 18, when the Atlantic Coast Fisheries began its sales of quick-frozen fish steaks. This city has been selected as the first proving ground for this new product, which has never before been available to the public. Quick-frozen fish fillets have been sold all over the country, but steaks cut in individual portions are something decidedly new, and Syracuse is having the first chance to pass judgment upon them.

A representative group of Syracuse business men, including Mayor Rolland B. Marvin, tried the steaks and pronounced them excellent at a luncheon meeting of the Optimists' Club held the day before the sales campaign began. They gathered in the ballroom on the top floor of the Hotel Syracuse, enjoyed a meal composed wholly of frozen foods, with the exception of the bread, celery, cheese and coffee, fish steaks being the main course. As soon as the luncheon was over, J. M. Richards, president of the Optimists' Club, presented Dr. Harden F. Taylor, former chief technologist of the United States Bureau of Fisheries, and recently chosen president of Atlantic Coast Fisheries. Dr. Taylor spoke from a scientific viewpoint on the subject of seafood, first pointing out the benefits which seafoods bring, and then describing the success that has attended the adoption of quick-freezing as a means of food preservation in the last few years. Dr. Taylor is one of those scientists who feels no obligation to be heavily technical whenever he gets up to talk, and as a result his Syracuse speech, which is printed in part in another column, was received with keen attention and understanding by his non-technical audience. Toward the close, when he remarked that the fish his hearers had just eaten were several months old, the sudden ripple of laughter showed that everybody was listening intently.

The frozen luncheon began with frozen figs supplied by Libby, McNeill & Libby, of Chicago. The frozen fish steaks, of course, were products of the Atlantic Coast Fisheries, the peas, corn and potatoes came from Henry Kelly & Sons, of New York, and the cherries for the cherry pie were packed by Libby's.

Nearly every man present took home a package of frozen fish steaks, which were distributed as the crowd left.

A number of the Optimists remained to see a moving picture of deep sea trawling, which was shown in an adjoining room. The picture traced the voyage of a steam trawler from the time it left the harbor until it returned and discharged its catch.

Among those invited to the luncheon were the dietitians of all of the Syracuse hospitals. A number of them were able to avail themselves of the invitation. They remained for the showing of the picture and then met and talked with Dr. Taylor. They expressed favorable opinions of the frozen fish steaks.

A long period of careful preparation preceded the opening of the sales campaign here. Both the Atlantic Coast Fisheries and the J. Walter Thompson Co., advertising counsel, began work several months ago in order that every detail should be taken care of properly.

(Concluded on Page 2, Column 1)

SUPPLANTING THE WALK-IN

Springfield, Ill.—The Bulpitt Refrigeration Company, 410 South Fifth Street, distributors for the General Electric refrigerators, have recently made an installation at St. John's Sanatarium at Riverton of two C-450's placed back to back in the very spot where the original plans called for a walk-in type of cabinet. The concrete block upon which the conventional type of compressor was to be mounted was removed from the room, giving an additional six square feet of floor space and clearing a passageway.

COOL JUSTICE

Louisville, Ky.—Stratton & Terstegge Co., distributors of Temprite coolers, has just reported an installation of Temprite coolers in the Louisville Police Court. Law offenders are now assured a "break" as far as a cool drink of water is concerned in this court.

NORDIC

(Continued from Page 1, Column 5)

The shape, size and design of the package were among the details decided first in order that the plant at Groton, Connecticut, might get into production in ample time. After considerable discussions and forecasting of probabilities, it was determined to make the individual steaks weigh four ounces each, and to put two of them in each package, the package to sell in Syracuse at 22 cents. The containers are of waxed cardboard, imprinted with a fish design in seafoam green, and sealed in cellophane wrappers. Each box states that it contains two Nordic fish steaks from which the bones have been removed, so that the two steaks are equivalent to the edible portions of two pounds of fish as ordinarily sold.

The boxes also contain instructions for cooking the fish steaks, pointing out that they should be put directly into the pan without waiting for the fish to defrost, and what is exceedingly good news to the housewife, that they do not have to be washed.

Because of the experimental nature of the Syracuse campaign, which incidentally is only the first of four such sales tests that have been planned—the next will be in New Orleans, beginning in a few weeks, the remaining two cities selected being Cedar Rapids, Iowa, and Roanoke, Va.—the stores in which the steaks are on sale have been carefully selected. This selective distribution has been relied upon to blanket Syracuse and some of the surrounding towns and villages, and when the campaign began, approximately 75 per cent of the available stores in the territory had arranged to handle the fish, with more to come. The larger chains on the list include the American and the Grand Union stores.

Wherever arrangements have been made for selling the Nordic fish steaks, all storekeepers and clerks have received mimeographed instructions giving them full details that should enable them to answer any questions that may be asked. Slips also have been provided which will make it possible to keep records of customers so that the repeat business may be checked.

Bright-colored window streamers announce that the new quick-frozen steaks are on sale within, and pictures of fishing scenes also help to spread the news. Dummy packages, looking exactly like the real thing, are furnished for display purposes.

Advertising in large space is being carried in the Syracuse evening papers, and will be continued during the campaign. It is planned to use approximately 24,000 lines of newspaper advertising, and, in addition, mats have been prepared and distributed to the individual dealers for use as parts of their own advertising.

For the last few weeks a specially recruited force has been lining up dealers for the campaign, making checks in regard to refrigeration facilities, and other like matters. George C. Rohrs, sales manager of the Atlantic Coast Fisheries, has spent considerable time here, as has his assistant, Richard Flint. W. W. Moss, representing the J. Walter Thompson, also has been much in evidence.

Distribution of the fish steaks is being taken care of by the Tobin Food Company's Syracuse organization, under the general direction of N. C. La Casse, resident Tobin sales manager. Fred Clarke, also of the Tobin organization, has been hard at work. A dozen Tobin salesmen and one of the leading Nordic salesmen have had a part in the job of preparation.

The fish steaks are delivered in Syracuse in carload lots, transported in special silica gel cars. They are put in a warehouse under low temperature refrigeration, and later distributed by a fleet of gaily painted Tobin trucks.

Proud of His Product

Dr. Harden F. Taylor examining a package of Nordic fish steaks.

• • •

SEAFOOD

Supplies Little Known Needs

By Harden F. Taylor

WHEN you sit on the sandy beach at Atlantic City or Long Beach and meditate as you look out over the vast expanse of blue water, you feel an inspiration from the beauty of the scene, and the monotonous rhythm of the waves as they beat upon the shore. You call it water; but you would be vastly more thrilled if you could know all that this fluid is that you call sea water, and of the myriads of things that go on its depths. For this fluid we call sea water is much more than water; it is, next to human blood, perhaps the most important fluid in the world. If we could only efface our own imagined self-importance, we would see that sea water is by far the most important fluid in all the economy of nature.

The fluid that we call sea water is, in reality, a solution of many most interesting substances. We think of it as being a bit salty. Salt is sodium and chlorine combined. These are just two of the 92 elements that make up the earth and all there is in, or on, it. Now, as a matter of fact, 39 of these 92 elements have been definitely found in the sea water. The others are very probably there is proportion to their solubilities. Now, let's see how it all comes about.

Ocean Is a Percolator

Under the sunshine pure water evaporates from the surface of the ocean. It goes up in the air as vapor, is carried over the land where it falls as rain—pure water containing nothing dissolved. The rain trickles down into the soil and underground, dissolving out the soluble minerals—the lime, the iron, the potash, magnesia, iodine, phosphorus, and, in fact, all of the chemical elements and compounds. The water, containing these minerals, trickles out of the ground in springs, runs down the brooks, creeks and rivers, back to the sea, carrying its chemical elements with it. Again it evaporates, but leaves its chemicals behind in the sea, and returns to land to bring back more of the land's supply of chemical substances—like water in a coffee percolator extracting the soluble substances from the ground coffee. The ocean is a vast percolator, robbing the land of its nutrient chemicals.

This process has been going on for millions and millions of years, until the land has become depleted of most of its valuable substances—mostly sand and clay being left. Our farmers have to buy their potash, nitrogen, lime, etc., to put back in the soil to make their crops grow. They get their fertilizers mainly from the residues from inland seas that have dried up and left their chemicals as mineral phosphate and nitrate deposits at various places on land. From great areas of land the iodine has been completely washed out.

Now, our own bodies are made up of some of the 92 chemical elements, and we must have our supply of them. We get them from plants and other foods we eat. Chemists 25 years ago thought that about 10 elements were all that we needed—carbon, hydrogen, Ca Na Mg Fe, and others. Somebody discovered that iodine was needed in minute traces, but without that ten-millionth of an ounce of iodine, the thyroid gland goes wrong and we are serious sick. So another element was found to be necessary for the body. Then, it had been known that manganese was present in traces in the human body, but it was not thought to have any significance or necessity there. It has now been found to be absolutely essential to life. Then copper was found in traces in the liver, and fluorine in the teeth and arsenic in the hair and nails, and lithium in all the organs, especially in the lungs. Experiments on rats showed that fluorine greatly stimulates the formation of hard teeth. So chemists keep adding another and another element to our list of those necessary for health, and many ailments and general poor health are being traced to this, that or the other deficiency in our diet. About twenty elements now seem to be necessary to our diet. Many of these elements are scarce or absent.

All Elements Present

But they are all present everywhere in the sea, in abundant and uniform proportion, for the sea is ever stirred and mixed by waves, currents and tides. Medical men may continue to discover more necessary elements for our bodies—no matter what elements they find to be necessary, they are in the sea. Sea foods grow in the most perfect nutrient solution known. Fish pass their lives in the presence of every element necessary for life. There is no deficiency of any element at sea that is useful in our bodies. When we consume sea foods we get an adequate amount of all the elements.

Not only does sea food contain the necessary material of life, but they are in easily digested, available form. A fish does not need to support itself. It is buoyed up by the water, merely floating. It therefore does not need tough hides, ligaments and connective tissues that land animals require to hold themselves together in their struggle for existence. Fish are, therefore, tender, falling to pieces readily when cooked, and are easily accessible to the digestive juices of the stomach, and accordingly digest readily. For this reason, in our days of indoor work and sedentary habits, fish are more suitable than the heavy foods our fathers needed in the arduous pioneer days. Being light, they do not produce the laggardness and drowsiness that heavy foods do.

Fish, especially cod, haddock, flounders and soles, being practically free from fat, are much less fattening than most starchy and fatty foods. They help to avoid the dreaded corporation that is now being presented to us in the shadowy cigarette advertisements.

Freezing Solves Problem

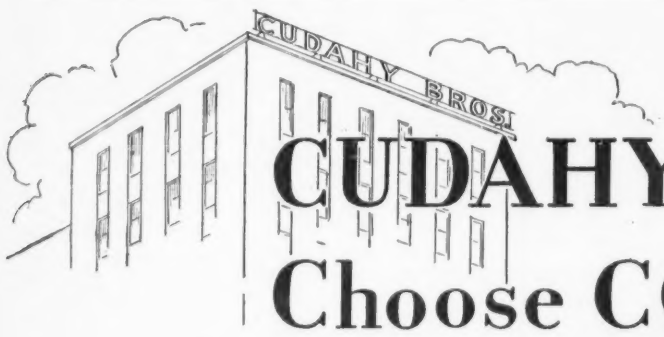
All of this body of knowledge about fish in the diet has been slowly developed by scientific research over a period of many years. But there was lacking the solution of many practical problems before fish in really inviting form could be presented to the public. Fish are highly perishable, as everybody knows—and disagreeable to handle, if whole. And bony. The perishability has been overcome by the modern process, now perfected, of extremely rapid freezing. But it was also necessary, in order to modernize the preparation of fish, to butcher the fish, separate the edible portions under sanitary conditions, package it in clean and attractive manner, and provide means to keep it in perfect frozen condition until it could be delivered to the consumer's table. Research has solved these problems. Fish need not now smell fishy when cooked or taste fishy when eaten. It can be delivered anywhere on the continent by means of the new iceless refrigerator cars, which are really traveling mechanical refrigerators set to keep a temperature of 15 degrees above zero, whatever the outside temperature.

The steaks served you today are made by what you would probably regard as very ingenious and interesting machines. One machine turns out 81 steaks a minute, and the entire process, including freezing, packaging and wrapping, requires only about 45 minutes. The steaks are all alike in size and shape, and practically free from skin and bone. They have the most perfect sanitary protection now known.

REFRIGERATORS FOR A GOVERNOR

Springfield, Ill.—The Governor's Mansion, which has recently been remodeled, now has General Electric refrigerators and refrigeration throughout. A model C-450, a model G-55 with Dr-3 unit and a DB-1 water cooler have been furnished by the Bulpitt Refrigeration Company, 410 South Fifth Street.

The G-55 is equipped with a Dr-3 unit to give the double evaporator which was desired. A glass plate is inserted below the evaporator to keep the rest of the cabinet from getting too cold, and at the same time allowing a large space for the storing of ice cubes. This G-55 is installed in the service pantry, while the C-450 is in the storage pantry.



CUDAHY BROTHERS Choose CORKBOARD *for Quick-Frozen Meats*

Packing company calls on Armstrong to insulate low temperature rooms . . .

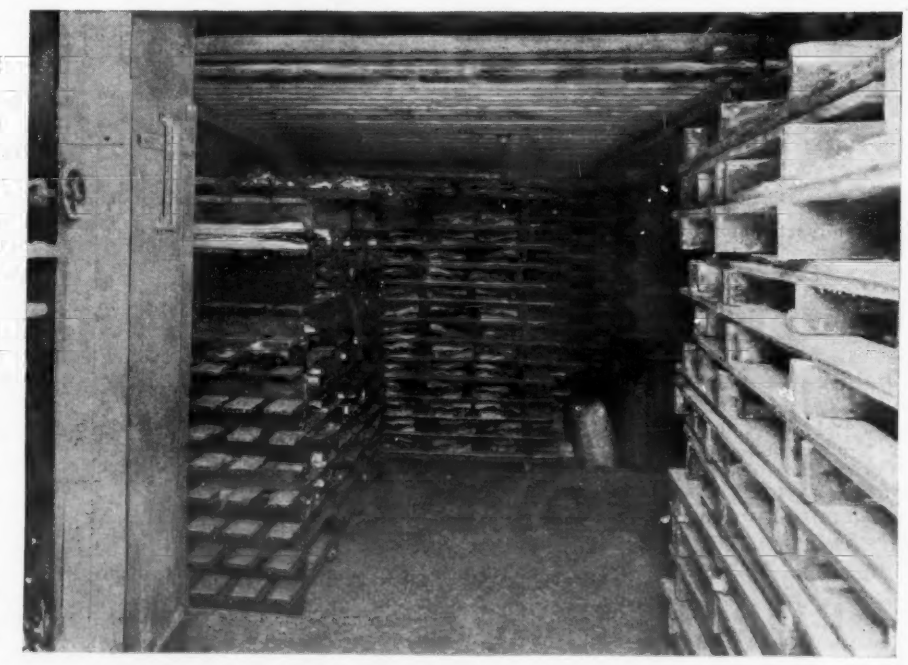
MEATS quick-frozen at fifty degrees below zero. Frigid temperatures that must be maintained. What insulation can satisfy these exacting demands? "Armstrong's Corkboard," says the Cudahy Brothers Packing Company.

The Cudahy plant at Cudahy, Wisc., illustrates the important part corkboard plays in quick-freezing. Careful plans marked the construction of the new quick-freeze rooms. Armstrong engineers were consulted on insulation. After a study of all the conditions, these engineers recommended 12 inches of corkboard to do the job.

This plant is now operating at capacity in the production of frozen meats. In just a short time Armstrong's Corkboard has once again demonstrated its effectiveness. Because it resists moisture—because it is structurally strong—permanently reliable. Installation by Armstrong's Construction Department provides added assurance that Armstrong's Corkboard will give extra service.

Armstrong's (A) Product

Armstrong engineers have been working in the low temperature field for more than a quarter of a century. To centralize their experience a Frozen Foods Development Committee has been formed. This committee will be glad to help you with your refrigeration questions. Their advice is at your disposal—just drop a line to the Frozen Foods Development Committee, Armstrong Cork & Insulation Co., 917 Concord Street, Lancaster, Pa.



CUDAHY'S QUICK-FREEZING ROOM *carried at 50° below zero, is insulated with 12" of Armstrong's Corkboard.*

Armstrong's Corkboard Insulation

The Standard Insulation for All Refrigeration

Frozen Meats Boost Meriden Sales

(Concluded from Page 1, Column 4)

lamb chops, ribbon loin chops, legs of lamb, dressed chicken and roast pork.

The new cuts have proved a tremendous business builder for his store, Mr. Yale says. Not only have a number of new steady customers been attracted, but the transient trade has grown. One of the most encouraging features is the steady stream of repeat orders for the cuts. Cash business has also been increased. Due to the facility with which the cuts are handled, no extra help has been needed, despite an all-around business increase affecting the entire store.

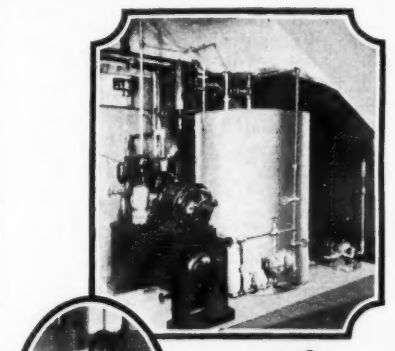
The success with which Mr. Yale has met in the merchandising of quick-frozen meats is attested by the following statement made for the Refrigerated Food Section: "Before we took on the frozen line we had never handled any fresh meats at all. Our business on the Swift quick-frozen cuts is now approximately $400 per week and still growing. With cold weather coming on we expect to double our meat business or better."

A Meriden dressmaker heard about the new product at a meeting she attended. Interested, she ordered and ate one of the club steaks. The following week she ordered 12 of the steaks for a dinner party. This is but one of the instances cited by Mr. Yale in illustrating the value of word-of-mouth advertising.

Mr. Yale uses large advertising space once a week in one of the Meriden papers to push the frozen meats. In the last two months he has doubled the sales volume in this department. This may be considered remarkable when it is considered that the late summer is normally a poor season for the sale of meat. With the coming of cool weather and the return of vacationers from the shore, even greater increases are looked for.

Have you heard the very latest?
SWIFT'S PREMIUM
Ready-Cut Meats
at YALE'S
Yes, madam, that is precisely what it means---the choicest cuts selected and cut and ready for you by the Swift & Co. experts . . .
No waiting at the counter, no chance of ragged cutting, no needless handling of the meat.
PORK CHOPS
ROAST BEEF
ROUND STEAK
ROAST LAMB
BACON
Step in and see the new Lig-O-Nier Refrigerator Case where this most modern market feature is displayed in Yale's famous old grocery store.
Or better, take advantage of the service which has won us our reputation. Place an order by 'phone and have your things delivered promptly.
LIG-O-NIER
Without a Peer
FRED L. YALE & SON
300 EAST MAIN STREET
Telephones 650 — 1942
SUMMER SAUSAGE
VEAL LOAF WITH PIMENTO
MINCED HAM
ROUND POT ROAST

Large space used to advertise fresh and frozen meats.


For Drinking Water Systems
FRICK
Refrigeration
For office buildings, hotels, hospitals, stores, etc., the central cooling system for drinking water with positive circulation, offers many advantages.
Use Frick Refrigeration for these and other commercial jobs. Capacities from 1-2 ton up. Get the facts on Frick Refrigeration today: write
Frick Company
WAYNESBORO, PA., U.S.A.
MACHINERY SUPERIOR SINCE 1883

FALLING IN LINE

New Britain, Conn.—Atlantic & Pacific Tea Company stores seem to be going in for mechanical refrigeration on a broad scale in this section of New England. The Connecticut Light & Power Company has just completed installation of display butter cases and walk-in coolers in 10 stores of the A. & P. chain in New Britain. The Frigidaire units used vary in size from 1½ to 2 h. p., according to H. A. Stockbridge, commercial manager of the power company's New Britain branch.

One of the outstanding installations recently completed in New Britain is that in the "key" A. & P. store and meat market at 170 Main Street. A 5 h. p. York unit provides refrigeration for three 9-foot display cases and one 18-foot case. All cases and the walk-in cooler were built by the Cushing Refrigerator Company of Boston.

Eight-foot visible coils keep the temperature down in a large front window, where meats and vegetables are arranged in appetizing rows. No special glass was installed, the ordinary window plate being left in place. Frank B. Stevens is manager of the store.

CULINARY FRIGIDAIRE

Seattle, Wash.—A Frigidaire is the featured prize for a cake baked by a lady in the Northwest in the forthcoming ninth annual cooking school competition of the *Portland Oregonian*. The The Frigidaire that takes the cake, or vice versa, will be awarded October 3. The electric refrigerator will go to the woman adjudged the best cake baker in the contest, which this year groups as prizes complete electrical equipment.

Initiative

As told in another column, Fred L. Yale, food retailer of Meriden, Connecticut, has gone ahead without any particular encouragement from anybody but himself, and built up a business in Swift's identifiable frozen meats that amounts to about $400 per week. That suggests the query, "If Mr. Yale can do it, why can't anyone else?" The answer probably is that almost anyone else with the same courage and vision can do exactly what Mr. Yale has done.

George Nitterhouse, one of the pioneers in the merchandising of quick-frozen fish and other products, has no patience with those who insist on waiting to see what is going to happen. Don't say "Rapid freezing is coming." Say "Rapid freezing is here," is his advice. Mr. Yale's success certainly confirms that statement.

REFRESHING BREEZES IN THE TROPICS

Dayton, Ohio—Col. E. A. Deeds, Dayton, nationally-known capitalist, has found an unusual use for the Frigidaire room cooler. He has installed eight of them on his new yacht, Lotusland. This winter when he sails for Cuba and points south, the hot tropical sun will not prevent those on board from keeping comfortable.

The Frigidaire room coolers are disguised as pieces of furniture on the Deeds yacht. Two units are concealed in walnut antique cabinets in the ship's lounge, two are concealed in an alcove off the salon, one is part of a desk in Col. Deeds' private quarters. The others are placed in the various bedrooms of the boat.

MORE MODERN APARTMENTS FOR SEATTLE

Seattle, Wash.—The Electro-Kold Sales Corporation of Seattle installed the electric refrigeration in the Sea View Apartments which were opened recently on W. Roy Street, overlooking Puget Sound and the Olympic mountains. Another large order for Electro-Kold in Seattle was that of the Dindorf Apartments on 7th Ave.

COPELAND FOR THE STUDENTS

Seattle, Wash.—Among the recent lunchrooms of Seattle which have gone Copeland is that in the university district located at the corner of 49th and 10th Ave., N. E., where the new type commercial Copeland has been installed through D. A. Lane, general manager of the Copeland refrigeration division of Harper-Meggee, distributors of Fifth Avenue, Seattle.

LARGE ORDER

New York, N. Y.—To equip apartment houses at 33 Riverside Drive, and 585 West End Ave., Alexander H. McRae, president of the McRae Construction Co., recently ordered 243 G. E. refrigerators from Clarence J. Robbins, of the Rex Cole organization. To the latter address will go 129 of the units, while the apartment on Riverside Drive will get 114.

FAIRGOERS

(Concluded from Page 1, Column 3)

are sold and shot a fusillade of questions at the counter men. Interest was general in ascertaining how soon the products would be put on sale in other places. This question could not be answered by the persons in charge.

It is believed that a great deal depends on the ability of the management to decide on some definite type of case that will commend itself as meeting retail requirements in a manner that will make it possible to dispense with the constant supervision of operation that has marked the experimental period.

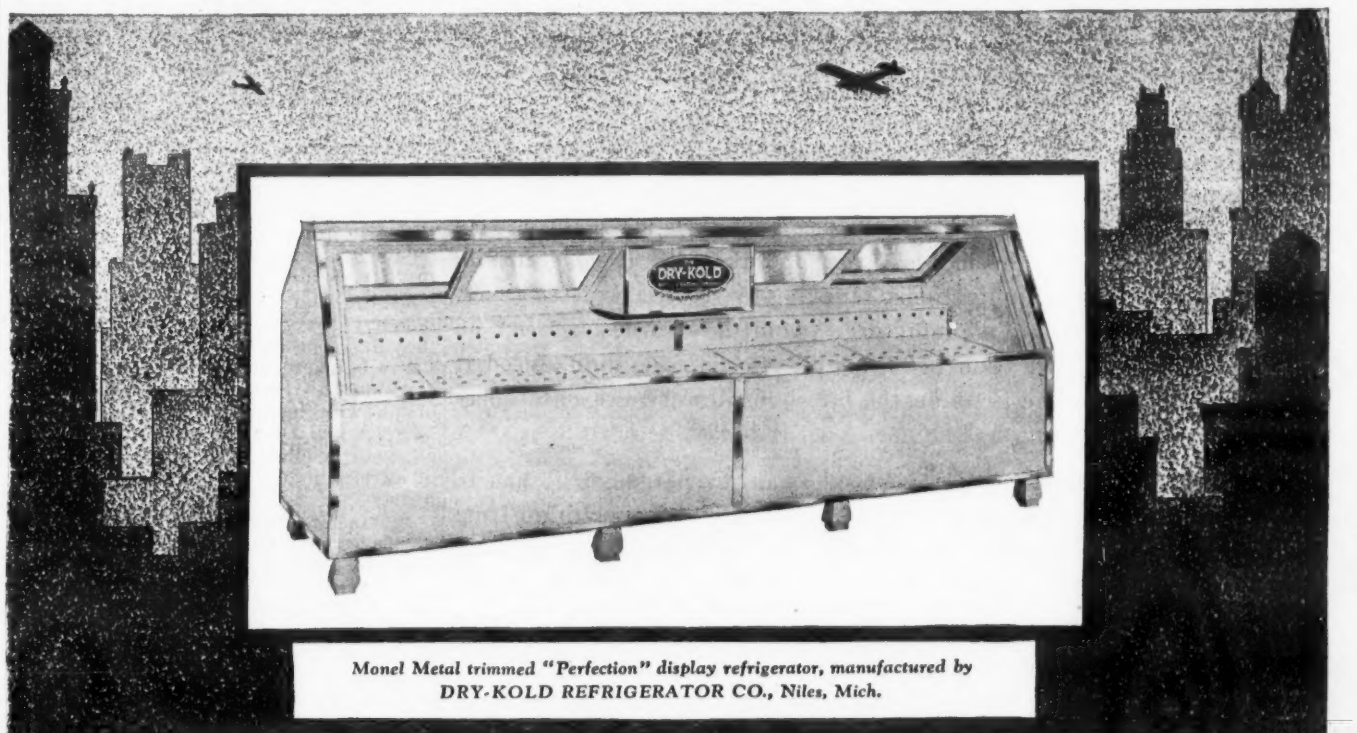
Between cooler weather and the addition of the new orange-label or second grades there has been a distinct gain in the volume of meat sales. The old blue-label line still has the preference, however, over the new popular-priced items, so far as the majority are concerned. Fish sales also have increased, due in part to the more varied assortment now available. A fresh pack of peas from Oregon is being well received.

EAST LAWN SANITARIUM TEMPRITE EQUIPPED

Northville, Mich.—A multiple installation of 40-W and 35-W Temprite water coolers has been made in the East Lawn Sanitarium at Northville, Mich.

Dr. A. B. Wickham is the owner of this sanitarium for tubercular patients. This sanitarium is equipped with the very latest of hospital and building equipment. It accommodates 100 patients.

At the present time the Temprite water cooling system is serving 120 people, including patients, staff and servants. It is operated by a Kelvinator compressor.



Monel Metal trimmed "Perfection" display refrigerator, manufactured by DRY-KOLD REFRIGERATOR CO., Niles, Mich.

Modern Display Cases look the part . . . they're trimmed with Monel Metal

MONEL METAL display equipment is helping live merchants make more money by attracting more trade, speeding turnover, increasing unit sales and cutting down upkeep costs. Manufacturers who make this modern equipment are capitalizing the wide acceptance for Monel Metal and the readier salability it gives their products.

Monel Metal is the mark of the modern display case—a sure indication of progressive methods and good storekeeping. Today this silvery Nickel alloy distinguishes the largest selling makes of display equipment. It is being rapidly adopted for trim, trays, counter plates and similar parts.

Monel Metal has no coating or plating to chip, crack or wear off. It is solid metal throughout, like sterling. Hard use and repeated cleaning cannot impair or change its original attractiveness. It is immune to rust and highly resistant to attacks of food acids and cleaning compounds. Easy to clean and keep clean, it protects foodstuffs against contamination and foreign odors.

Leading manufacturers find Monel Metal ideal for frozen food display equipment as well as regular display counters. We will gladly send you interesting facts about this new use of Monel Metal.

SEND FOR BOOKLET "THE CASH VALUE OF APPEARANCE"

INCO MONEL METAL

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REFRIGERATED FOOD SECTION

ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

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The Rising Tide

IN the commercial field, refrigeration has so many applications that it would seem that all a commercial salesman needs to do is to walk right into the first door he comes to and make a sale. Actually it isn't as easy as that, for the very multiplicity of the applications makes it necessary for the salesman to know just a little more about various kinds of businesses and manufacturing processes than the average brain is able to hold.

The article on refrigeration in the wholesale bakery by Peter G. Pirrie, which appears on Page 6 of this issue of the Refrigerated Food section, is a case in point. Mr. Pirrie, who is the engineering editor of Bakers Weekly, calmly points out that there are six or seven major points at which refrigeration is utilized in connection with baking, and when he comes to the minor points is compelled to dismiss them as almost too numerous to mention.

That being the case in one industry such as baking, the spread of refrigeration through other food production industries, is incalculable. The man who would sell commercial refrigeration to every possible prospect in his territory, must be as smart as they make them. He has one comforting factor in his favor, and that is the constant increase in refrigeration applications. Judging by the trend of the times, only a brave or obstinate manufacturer would dare to declare that he has no need for refrigeration in his plant. Perhaps he didn't need it yesterday, but unless he is up on the latest results of research he may be surprised to discover that he does need it today.

So the commercial refrigeration salesman, even though he has to know more than he ever thought he would know about everything from soup to nuts, has a glorious opportunity. His prospects must at least listen to him, and give themselves a chance to keep up with the procession.

The two articles on refrigeration in bakeries, retail and wholesale, which have appeared in this and the last issues of the Refrigerated Food section, will be followed by others of a similar nature indicating the possibilities in other branches of the food industries.

Refrigeration as a preservative of foodstuffs is coming into its own.

* * *

Why Eat Fish?

ONE of the best informed men in the new quick-frozen food industry is Dr. Harden F. Taylor, formerly identified with the United States Bureau of Fisheries, and recently made president of the Atlantic Coast Fisheries. In his address at the luncheon in Syracuse, which ushered in his Company's city wide sales campaign, Dr. Taylor talked about sea water, and made it plain to those who heard him, that the substance which the average individual thinks of as merely salt water, contains a multitude of substances which we can hardly get along without.

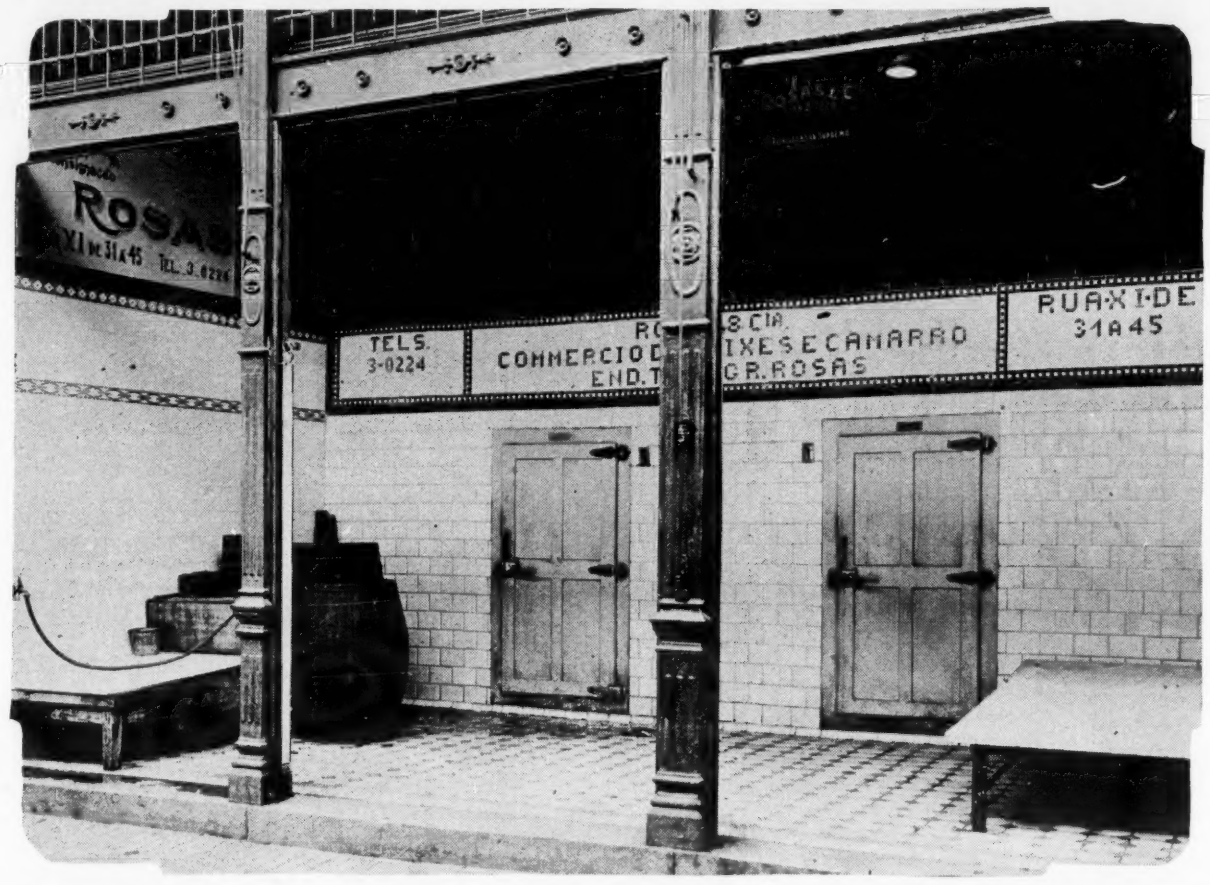
This clear-cut explanation of the beneficent effects of sea water is doubtless an old story to many scientists, but the group of men who listened to Dr. Taylor at Syracuse obviously seemed to be hearing it for the first time.

Fish as an article of diet has had plenty of ardent proponents for many years, but most of them have been content to tell us that we ought to eat fish because we ought to eat it. Dr. Taylor goes a great many steps further and explains in every-day English just why fish are good for us. His speech is printed on Page 2 of this issue of the Refrigerated Food Section.

The quick-frozen food industry undoubtedly will be indebted to the Atlantic Coast Fisheries for the knowledge that will be gained in the comprehensive, large-scale sales campaigns in Syracuse and New Orleans—the first of their kind—but the fish section of that industry need not await the outcome of those campaigns to acknowledge its debt to Dr. Taylor.

His is a most valuable contribution to the cause.

Refrigeration Compulsory



Rio de Janeiro, Brazil.—A city ordinance, requiring all meat and fish establishments to provide mechanical refrigeration for the preservation of their products, has favored the sale of American mechanical refrigerators in Rio de Janeiro. The photograph shows a Kelvinator installation in the fish section of the Municipal Market.

Sulphur dioxide gas is used. In the case of installations of this type where boxes are not used, the cooling chambers, including the doors, are made of material obtained locally.

Hundreds of such installations are now in use in the city of Rio de Janeiro and the buying public has learned to like refrigerated foods.

"RAPID FREEZING IS HERE"

Indianapolis, Ind.

ELECTRIC REFRIGERATION NEWS,
Detroit, Mich.

Having read with great interest practically every copy of your publication, I think it no more than right to express my appreciation for the work you are doing in fostering the young giant industry growing so rapidly, namely, the rapid freezing of perishable foods.

To those of us who have been in the industry for some time, and have seen the many problems which must necessarily be overcome before rapid freezing can take its rightful place, and to those of us who have been in the industry long enough that the novelty has worn off, your publication has come as a shot of adrenalin to a man with a weakened heart.

We feel with certainty that the work you are now doing in an educational way, in gaining public acceptance, and disseminating ideas, will eventually bring you good returns.

Our experiences in this field have shown us that four things must necessarily come about to assure the ultimate success of rapid freezing. They are:

1. **The interest of sufficient capital.**

2. **Absolute knowledge of the science involved, and its correct mechanical application.**

3. **Absolute knowledge of the business of selling this type of merchandise so that it is economically sound.**

4. **Public education so that the consumer demand it built up to the point where the public appreciates the advantages of rapid freezing and demands products so processed.**

Now for taking these problems up one at a time. As much of rapid freezing will be done by those engaged in handling the fresh raw products, and as the financing is purely personal, we will skip over this item.

Now for the second item: the science involved is pretty well in hand, and I believe that from a freezing standpoint apparatus is available which can very successfully handle the job.

The third problem is basically the most important because unless a product can be sold at a profit and to the complete satisfaction of the consumer, the manufacturer—and distributor, if there is one—none of the other problems, if overcome, mean anything. In our opinion experiments in a few stores mean nothing. What the industry needs is a little forced merchandising, or, in other words, why not find a home for the products as fast as they can be turned out? Whether the product should be full-packaged, semi-packaged, or sold in the naked cuts, is a problem which only trial sales on a competitive basis can prove.

For the proper development of the industry, experimenting in a small incomplete way, to try and hit on some magical way to cause the public to wish to lay down money and walk out of a store satisfied with the purchase of a rather costly novelty package, should be abandoned, and forced merchandising at a profit should take its place. There is no magical way of creating a desire for rapid frozen goods; it is purely a matter of selling what we already have and selling it to capacity. After this is accomplished knowledge of what the public wants, how it wants it, and what it wants to pay, are matter of development and expansion governed, of course, by competition. Store salesmanship and personalities have at least a 50-50 importance rating with the representative purchasing tendencies of the neighborhood. Why not sell the goods to whoever wishes to buy it and try to oversell production, then expand? This is the normal growth every business goes through. Those engaged in rapid freezing should take into consideration all the economics involved and try to expand their business on the basis of its economic worth, rather than on the basis of a hoped for monopoly of their field.

Merchandising is more a matter of hard work and common sense than some remote theory on just what the public wants. Finding what the public wants is a matter of selling what you have, and listening to comments, changing the article as comment dictates, and listening again. At least this is the best way to stay in business while developing the line.

The fourth problem, that of gaining public acceptance and educating the public, is, of course, very closely associated with the merchandising problem, and depends on all the stunts used in getting the story over to the public. The work done by your publication is, I feel certain, unparalleled by any publication so far, and I do believe that it is going far to build up potential consumer demand. Summing up everything, I would say the prime weakness is in merchandising, and I do believe it would pay us all to make sales wherever possible, rather than be content to say, "Rapid freezing is coming." Why not say, "Rapid freezing is here?"

Yours very truly,
FRIGIDIZED FOODS, INC.
Geo. Nitterhouse, Jr., Pres.

CONCURRENCE

IN answering a query from a reader, *Printers' Ink* in its September 18th issue reveals an unexpected enthusiasm for the cause of quick-frozen foods. The reader inquired about some of the recent activities of the big packers, and the reply, after devoting a few brief sentences to the efforts to obtain revocation of the Consent Decree and kindred matters, continued as follows:

"Within recent months, however, a new problem has arisen and this may very well prove to be the biggest problem the packers have had to face. Paradoxically, this same problem may eventually prove to be the most munificent gift thus far thrown into the lap of a long-suffering industry.

"We refer, of course, to frozen foods in general and frozen meats in particular. Beyond doubt, one of the industry's chief problems has centered around the perishability of the product itself and the retailer's attendant inability to keep up with merchandising progress. The new freezing processes promise to change all that.

"In the first place, these processes remove, to large degree, the hazards of perishability. Second, they enable the meat market to lift itself out of the slough where it has rested for many years. They place before the meat industry its first opportunity at merchandising via the modern package and the industry has shown itself eager to capitalize these new possibilities.

"In brief, a new outlet is in the making. The butcher—a name that has always had an unpleasing connotation—will be forgotten and in his place will arise a new type of food merchant; one whose business will be frozen foods in general with meat perhaps the most important single item on the shelves.

"The food industry today is presenting the merchandising world with a plethora of revolutionary trends and tendencies. It may very well be that frozen foods will work a revolution of their own in distribution that will make these other developments seem insignificant by comparison."

MODERN WATER COOLING IN NEW OSSINING SCHOOL

New York, N. Y.—An installation of a complete circulating drinking water system has been made in the recently opened new high school at Ossining, N. Y. The cooling system comprises one No. 7 Filtrine cooler and one 100 A W Servel refrigerating machine. The water is filtered by two style "A" Filtrine filters and is circulated by a ⅓ h. p. Westco-Chippewa direct-driven pump.

FRIGIDAIRE INSTALLED IN MERIDEN SANITARIUM

Meriden, Conn.—Connecticut Electric Equipment Company, Inc., 15 Church Street, Frigidaire dealer, has installed a model AP-60 refrigerator in the Undercliff Sanitarium, Meriden, according to E. B. Wilcox of the firm. Three Lyons milk urns, with Frigidaire ½ h. p. units, were also installed in the sanitarium.

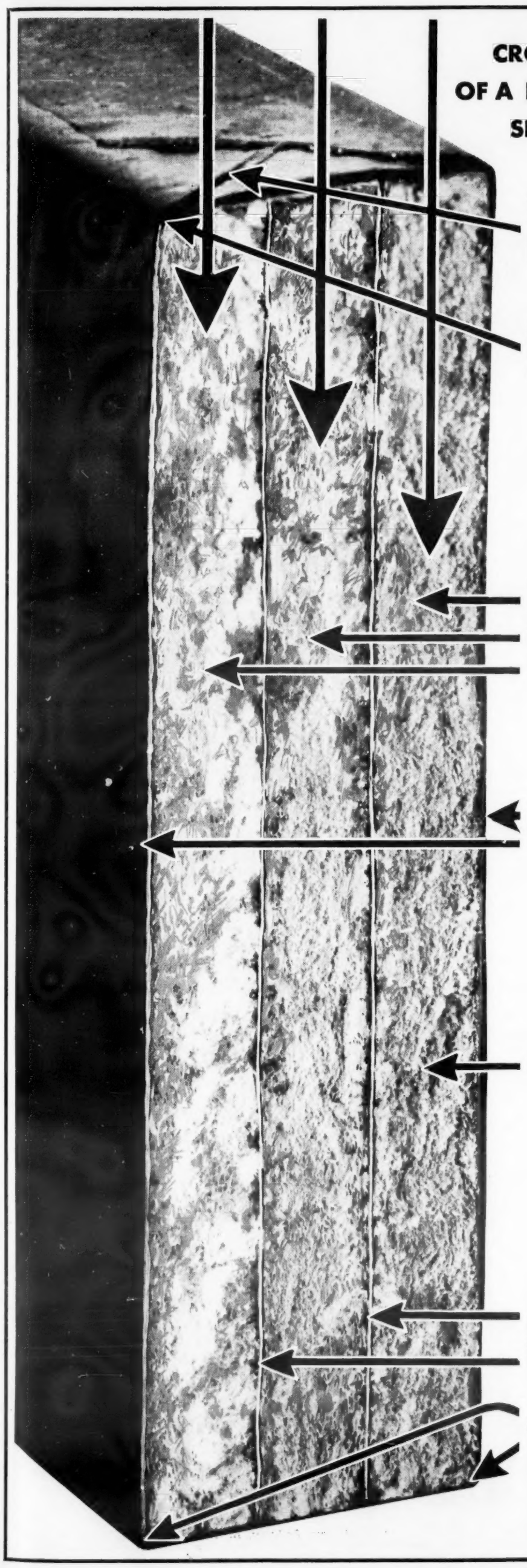
TEMPRITES COOL ROOT BEER

Jacksonville, Fla.—The Kelvinator-Kimmell Company has recently made an installation of Temprite beverage coolers. The installation was in the Quencho Root Beer stand and required a Model 90-B-3 unit. This model cools three different beverages simultaneously.

OVALLE OPENS BRANCH AT LANCASTER

Lancaster, Pa.—N. K. Ovalle, Inc., General Electric distributor at Harrisburg, takes pride in the new store it opened in this city recently. The G. E.'s stand out very well in the colonial atmosphere of Ovalle's latest addition. J. A. Brandt has taken charge of the new store and Oscar Peffley, formerly in charge of service at Lebanon, has been transferred to handle delivery and service for the Lancaster branch.

COMPLETELY FILLED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Completely filled with full size sheets of standard Balsam-Wool—positive assurance of value and permanence.
Strong, water-proof sealing wrapper.
Balsam-Wool mat.
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Sharp, true corners

with full size sheets of standard Balsam-Wool

Quality maintained . . . Full insulation value . . . These have made 1930 volume largest in 7 years of ever-increasing sales!

First of all, it's highly efficient insulation. You can see why . . . in the big photo at the left.

Merit in actual use has brought it larger sales every year for seven seasons. Merit based on definite points of superiority that do not change!

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Balsam-Wool *Sealed Slabs*

Refrigeration is Necessity in Modern Wholesale Bakery

Preparation of Bread and Cake Requires Cooling Apparatus

By Peter G. Pirrie
(Engineering Editor of Bakers' Weekly)

REFRIGERATION is just as necessary in the wholesale bakery as are mixers which turn out the dough and the ovens which bake the bread and cake. Its application is considered a necessity in every modern plant which is being erected in the United States today. The major points at which it is utilized are in connection with cold water for the mixer, dough room temperature control, cold water or brine for mixer jackets, cold air for the mixer, special yeast storage cabinets, miscellaneous storage, in connection with air-conditioning devices (particularly in connection with de-humidifying), and in a variety of special applications, such as cold slabs and special ingredient cooling problems.

W. W. Reece, one of the outstanding bakery engineers in the United States, recently made the following statements in an address before the American Society of Refrigerating Engineers: "A changed and improved personnel has come into the business. . . The industry is stable and will continue so. . . Refrigeration plays a distinct part in controlling temperatures. . . I believe the baking industry is being constructively served by the refrigeration people. There is much yet to be accomplished in further developing sound standardization methods of refrigeration application."

Definite Control

Competition being what it is in the baking industry, the successful wholesale plant must have a definite control over ever step in the process of manufacture. The application of refrigeration will depend on the type of bakery. If it makes bread alone, the problem will be solved in one way. If it makes cake alone, the solution will be quite different. In the biscuit and cracker industry, we have a third problem. Let us consider each of these briefly, the object being to obtain an over-all picture of the character of the problems.

In the bread bakery, the most outstanding problem requiring refrigeration is at the dough mixer. There has been a mechanical revolution at this step in the process during the past ten years. Today it is substantially standard practice in the United States to employ "high-speed" mixing methods. From the refrigerating engineer's standpoint, this means that from three to four times as much energy is being absorbed into each mix as was true in 1920. The result is that from three to four times as much heat is being developed, to the extent that rather large amounts of artificial refrigeration, in one form or another, must be applied in a controlled manner, otherwise that vital factor in the uniformity and character of the finished bread — dough temperature — will vary within wide limits.

Let us remember that heat gets into every bread mix from at least three major sources. The first is that due to the H. P. input into the mixer agitator. The second is that due to the heat of hydration of the flour, which amounts to an average of 6.5 B. t. u. per pound. The third is due to the fact that in many cases the temperature of the flour at the time it enters the mixer is above dough temperature. These three sources of heat are responsible for the fact that it takes as much as eight tons of refrigeration to control the temperatures in the doughs coming out of one large mixing machine.

Various Requirements

The exact amount of refrigeration required depends, of course, on the number of doughs per hour, the length of the mix, the agitator reaction, the formula, the tap water temperature, and the temperature of the other major ingredients. Standardization of refrigeration requirements is not possible on a basis of the output capacity of a bakery. In other words, it is not possible to say that a four-oven shop requires four times the refrigeration that a one-oven shop does. In an extreme case, the reverse can easily be true.

Bakery engineers quite generally agree that if a sufficient amount of sufficiently cool ingredient water is available throughout the entire period of operations for any one day, the refrigeration problem at the dough mixing machine has been overcome. The quantity of water which will be used is easily calculated from the shop schedule. The heat created in the dough is easily calculated from the known amount of flour used and the temperatures of the ingredients, as well as the mechanical characteristics of the mixing machine. With tap water temperature at a known average level, the refrigeration requirements in customary units is quickly arrived at, and a lower level of ingredient water supply established which makes control over dough temperature possible. Even in extreme cases, 38 degree ingredient water seems to meet the demand.

It is true that in the case of sponge doughs the added difficulty of controlling dough temperature requires the circulation of a refrigerant through jackets around the mixing bowl, but whenever the cold ingredient water is available, this circulation of cold water or brine through jackets solves the additional problem. The equipment necessary in order to do this has been standardized.

A typical installation consists of a cold water ingredient tank with a capacity of three times the hourly demand of the mixer. The water in this tank is cooled by means of a directly connected refrigerating unit which operates under thermostatic control. The water from this tank either flows by gravity or is pumped to the automatic weighing hoppers or to the metering devices which supply the mixer. When the ingredient water tank is at a lower level than the ingredient water hopper, it is customary to keep the water flowing in steady circulation in order to equalize temperatures and in order to prevent freeze-ups. Ingredient water should not be used for circulation through mixer jackets. A separate and smaller tank is refrigerated from a separate source, and this water is recirculated through the jackets.

The size of the compressor which must be used varies between wide limits for different bakeries. A half-barrel mixing machine, running on white bread by the straight dough process, may require as little as one-third of a ton of refrigeration. A one- and one-half-barrel mixing machine, running at full capacity and on straight doughs, can get by with three tons of refrigeration under average conditions. As against these figures, the mere switching over to the sponge dough process boosts the refrigeration required to ½, 3¾ and 7⅓, respectively.

Central Compressor

It is obvious that many of these cases are beyond the range of the smaller capacities in refrigerating equipment. In plants of this size, the usual procedure is to employ a centrally located compressor, large enough to take care of the maximum and total refrigerating load for the entire bakery, and then to distribute the refrigeration to the various points of application. There exist a number of cases where units of less than one-ton capacity have been applied to much larger loads. This is accomplished by coupling the units in tandem. It is largely a matter of economic advantage as to which system will be used in any one particular bakery. Both appear to be successfully meeting the problems from the engineering standpoint.

The bread baker, in addition, has the problem of a definite control over his dough room temperatures. There is no more vital factor in the process of the manufacture of quality bread than the control over temperature of fermentation. Standard practice requires an insulated dough room, with many bakery engineers leaning towards a controlled room temperature of just slightly less than the temperature of the dough itself. Specifications ordinarily require maintenance of this temperature within plus or minus one degree. The problem of figuring the amount of refrigeration required is a simple one, standard methods and data being applied to a room of known construction, known volume and known operating characteristics. There is a strong tendency to discontinue the use of direct expansion coils in bakery dough rooms. Cold water coils or brine coils at comparatively high temperatures are preferable, because they do not dehumidify the dough room atmosphere to the same extent that direct expansion coils would. Naturally such installations should be under thermostatic control.

Air Conditioning

Many dough rooms in our more modern plants have both temperature and humidity under control by means of air-conditioning equipment. In practically all cases the amount of refrigeration obtainable from well water alone is insufficient to take care of dough room temperature cooling during the warm months of the year. This requires the application of mechanical refrigeration to such air-conditioning equipment, and is usually accomplished by direct contact between the refrigerating engineer and the engineer of the company supplying the air-conditioning device.

All bakeries, whether they make bread, cake or other products, must of necessity set up refrigerated storage spaces for their more perishable ingredients. Yeast should be stored at 40 degrees F., and certainly not over 50 degrees. It is seldom stored with other ingredients, a special shelf space being isolated on the mixing platform or in the partition between the mixing platform and the ingredient storage room. Many such yeast storage boxes are connected to individual compressors of quite small capacity.

Other ingredients, particularly fats, shortenings, milk products, eggs, etc., are stored in general refrigerated spaces which do not present any different problem than from standard boxes used for similar purposes. If an economic and operating advantage can be shown to the baker, for the installation of individual compressors at each point of application, he will be glad to listen to a comparison with the advantages of single compressor installations of larger capacity.

Cakes Need Study

In the cake bakery, refrigeration has not as yet been applied in as well standardized a manner as it has been to the production of bread. Bakeries themselves are not all agreed as to the temperatures which they desire to maintain. Engineers have not had an opportunity to solve the problem, or even to study the problem, because cake baking is only coming out in a constructive reach for that 70 to 80 per cent of the business which it has not had in the past.

The modern cake plant is, however, even more of a process to be controlled than is true in the case of the bread plant. As the cake baking plants of the industry develop, it will open up a field for the refrigerating engineer to study and to serve. There will be problems of de-humidification in connection with the cooling and icing of cakes. There will be temperature control problems. There will be problems of the control of ingredient temperatures just prior to mixing and during the mixing process. Fortunately for the refrigeration industry, the modern cake plant is in a position to study its problems in far more definite terms than was true even a few years ago.

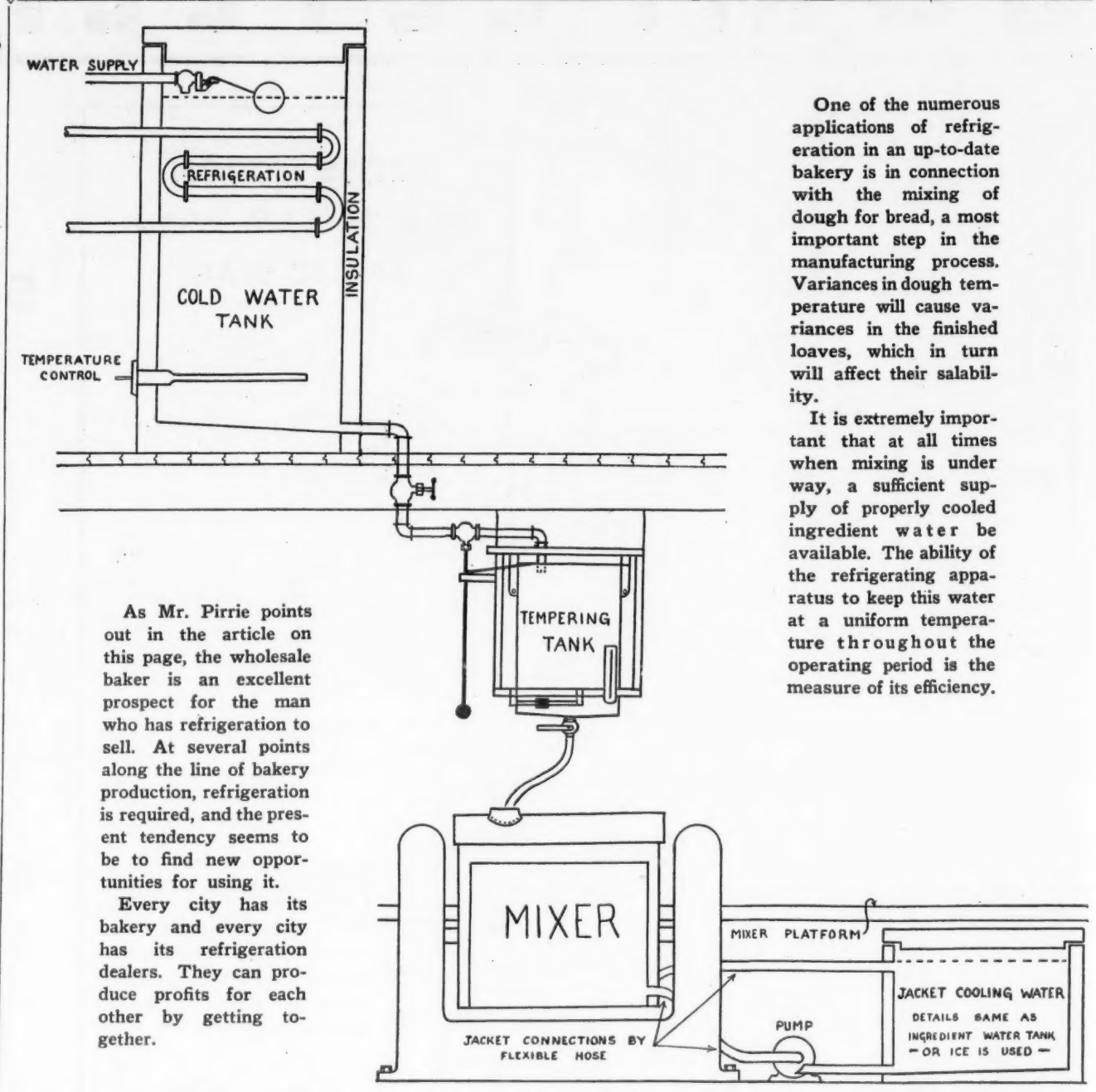
The biscuit and cracker branch of the industry is today almost 100 per cent mechanized, at least in the larger units. There are the same problems of storage and a group of problems of process control involving temperature, which in general are similar to the problems of the cake baker. Due to the fact that the basic data varies within such wide limits from plant to plant, the actual requirements in tonnage of refrigeration must be worked out in each particular case.

Flour Difficulties

There are some problems involving refrigeration at present being worked on and which will most probably be solved not with the mechanical variety. Both the cooling of bread and the storage of flour are known to be affected by conditions of temperature as well as of humidity. It is, in general, agreed that flour suffers in one way or another if its temperature during storage gets appreciably below 65 degrees F., or appreciably above 75 degrees. At a temperature of 50 degrees, what the baker calls "ageing" ceases for all practical purposes. At temperatures above 80, and particularly around 90 and 100, flour ages too rapidly, gives difficulty because of insect infestation, and creates a serious temperature control problem at the mixing machine.

The cooling of bread is a problem involving attempts to overcome the uncertainty of the cooling period as existing with present equipment used, and the uncertainty of the weight lost during cooling and as existing at the same time. These latter two problems, however, seem to belong more to the realm of the air-conditioning engineer and to requirements easily obtained from well water supply, so that mechanical refrigeration most probably will not be used when the final solutions have been arrived at.

The other existing requirements of the wholesale baker are, however, so great and so varied, and at the same time offer so ready a solution, that the baking industry and the refrigerating industry have common grounds to work upon for each other's benefit.



Typical refrigeration set-up for mixing of bread dough.

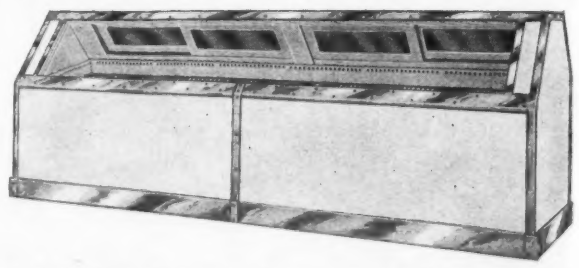
As Mr. Pirrie points out in the article on this page, the wholesale baker is an excellent prospect for the man who has refrigeration to sell. At several points along the line of bakery production, refrigeration is required, and the present tendency seems to be to find new opportunities for using it.

Every city has its bakery and every city has its refrigeration dealers. They can produce profits for each other by getting together.

One of the numerous applications of refrigeration in an up-to-date bakery is in connection with the mixing of dough for bread, a most important step in the manufacturing process. Variances in dough temperature will cause variances in the finished loaves, which in turn will affect their salability.

It is extremely important that at all times when mixing is under way, a sufficient supply of properly cooled ingredient water be available. The ability of the refrigerating apparatus to keep this water at a uniform temperature throughout the operating period is the measure of its efficiency.

Commercial Refrigerator Equipment
For All Purposes
STOCK or SPECIAL BUILT



BANTA REFRIGERATOR COMPANY
CLEARFIELD, PENNSYLVANIA

The Wegman Food Department Store, Rochester, N. Y. Thesco equipped

QUALITY THESCO SINCE 1870

DEALERS: Do Jobs Like This Mean Anything to You?

The Wegman Food Department Store, Rochester, N. Y., is the largest store of its kind in New York State. The illustration shows but one section of this vast enterprise, which consists of row after row of THESCO equipment, planned, arranged and designed by THESCO engineers in collaboration with Wegman officials. And this job is only one of the many, this size and larger, which The C. Schmidt Co. is doing throughout the United States. There is no question about it—jobs like this MEAN something to the THESCO dealer.

DISTRIBUTORS: A few fertile territories are open. Write for complete proposition and catalogs.

THE C. SCHMIDT CO.
JOHN AND LIVINGSTON AVENUE CINCINNATI, OHIO

Prize Winning Recipes

Nashville, Tenn.—The Nashville Tennessean's "Market Basket Page" recently awarded six prizes for the best frozen desserts recipes submitted to the paper. Mary Lyles Wilson, presidential cake-maker, judged the recipes submitted. In speaking of the winning recipe, she said:

"The Golden Canton Mousse recipe was a little more than unusual in combination than the others. It is easily made and attractively colored."

She also commented on the Southern Frozen Cheese Pudding, saying that: "Few persons would think of putting cheese in a frozen dessert, yet this recipe has used it to secure a smoothness and a nut-like flavor that is really excellent."

The "Market Basket" is a page in the Nashville Tennessean that is devoted to new and better recipes in the center, with food, refrigerator and stove advertisements parked around the border. The prize winning recipes:

GOLDEN CANTON MOUSSE

($5 First Prize, won by Mrs. A. J. Dyer, Nashville)

1 cupful of sugar
¼ cupful of water
Yolks of 4 eggs
½ cupful of milk
1 pint of cream, whipped and drained
½ cupful of chopped preserved ginger
1 cupful of fresh marshmallows, cut fine with scissors
Chopped browned almonds

Make a syrup of the sugar and water. Beat eggs light and add syrup and milk. Cook in double boiler, stirring constantly, until it forms a thick coating on the spoon. Place vessel in ice water and beat mixture until cold and quite stiff and light.

Add the whipped cream, the ginger and the marshmallows.

Freeze in drawer of mechanical refrigerator or place in covered oiled mold and pack in ice and salt for four hours.

Serve in a steam glass or in a meringue shell. Pour a spoonful of the ginger syrup over the mousse and garnish with one piece of ginger and the chopped browned almonds.

MACAROON DATE BISQUE

($1 Prize, won by Mrs. A. C. Doherty, Nashville)

2 cups heavy cream
4 eggs
1 dozen macaroons, crushed
1 tablespoon lemon juice
1 cup milk
¾ cup sugar
½ cup dates, chopped fine
½ teaspoon almond extract
⅛ teaspoon salt

Scald milk and stir slowly over well-beaten eggs and sugar. Stir macaroons, crushed fine, into the mixture; add dates, lemon juice, almond extract and salt. Fold in the cream, whipped stiff. Freeze.

SOUTHERN FROZEN CHEESE PUDDING

($1 Prize, won by Mrs. Williams, Nashville)

2 egg yolks
1 cupful of sugar
1 pint of scalded milk
½ tablespoonful of vanilla
½ pound of cottage cheese
2 cupfuls of evaporated milk

Whip the egg yolks thoroughly and beat in the sugar gradually. Add the scalded fresh milk and cook over hot water until thickened. While this custard cools over cold water, put the cheese through the food chopper, using the finest knife. Mix with the evaporated milk, stirring in the vanilla, and blend with the custard. Freeze as usual to the consistency of ice cream. The cheese lends a delicately acid flavor and freezes in tiny nut-like particles, though the cream itself is rich and smooth.

CHOCOLATE MARSHMALLOW CREAM

($1 Prize, won by Mrs. Heiman, Nashville)

2 eggs
1 cup of powdered sugar
1/5 pound bitter chocolate
½ pint coffee cream
½ pint whipping cream
6 marshmallows

Separate the eggs. Beat the yolks light and add to the sugar. Melt chocolate and add to sugar and egg mixture. Stir smooth with half pint coffee cream and whip with rotary egg beater. Beat egg whites stiff, and also the whipping cream, and fold both into chocolate mixture. Add the marshmallows, cut into small pieces. Pour into ice tray and freeze several hours. Do not stir. (6 portions.)

CARAMEL CREAM

($1 Prize, won by Annie B. McClain, Lebanon)

6 egg yolks
3 pints of sweet milk
1 pint of heavy cream
1½ cups of sugar
6 tablespoons of brown sugar
2 level tablespoons flour
½ cup boiling water
1 teaspoon vanilla

Caramelize the 1½ cups of sugar, using an iron skillet for this (browns more evenly and less danger of scorching). Stir constantly until all sugar is melted, then add boiling water, stir until a thick syrup. Have two pints of milk hot in double boiler, add the syrup to this. Mix flour and brown sugar together and beat into egg yolks. Pour hot milk, to which syrup has been added, slowly over beaten eggs, stirring all the time. Return to double boiler and cook until thickened. Cool and add third pint of milk and the cream. Add the vanilla and freeze. Pack in ice and salt an hour before serving to ripen. When frozen it makes nearly a gallon and requires less cream than most recipes.

PINEAPPLE GRAPE JUICE SHERBET

($1 Prize, won by Mrs. Jean, Shelbyville)

3 lemons
1 medium size can crushed pineapple
1½ cups sugar
1 cup water, juice from pineapple
½ pint heavy cream, whipped

Make syrup of water, sugar and pineapple juice. If frozen in electric refrigerator, use one teaspoon of gelatin, dissolved in half cup of hot water. Add lemon and grape juice. When cold, beat with electric mixer or egg beater until light. Add crushed pineapple and when frozen to mushy consistency add whipped cream. If not sweet as taste fancies, sugar may be added. This makes a pretty lavender sherbet, but if color is not decided enough, a few drops of lavender fruit coloring may be added. Top servings with crystallized violets.

ALL ELECTRIC

Cleveland, Ohio—Each week sees the opening of a model kitchen by one of the distributors of General Electric refrigerators. The latest model kitchen to be opened is that of the Cushman Refrigeration Company at Cleveland. It is electrical throughout—electric refrigerator, electric dishwasher, electric range, electric fan, electric clock, electric food mixer.

The kitchen is under the direction of Mrs. Helen Murray, who has been connected with the Cushman company for about three years. She originally was in the sales department, where she established quite a record, but with the growing interest of club women and housewives generally in electric refrigeration it was felt that the company should have a model kitchen where demonstrations could be given and where groups of women could come to hear lectures. Mrs. Murray was made home service director of the company.

How well she has started on the work is evidenced by the fact that since she has been in the home service department she has closed eight sales for refrigerators. She intends to follow the

Mrs. Helen Murray

complete outline for home service activities, as arranged by Miss Edwina Nolan, home service director for the electric refrigeration department, General Electric Company. However, at the present, she is holding demonstrations for groups of users each Friday and is spending considerable time on apartment house work. She calls on tenants of apartment houses where refrigerators are installed and discusses the advantages of refrigeration with apartment house operators.

The model kitchen was constructed at the rear of the Cushman main store on Euclid Avenue, Cleveland. Centrally located in the downtown section, the store and the kitchen are accessible to thousands. Visitors to the store are attracted to the kitchen.

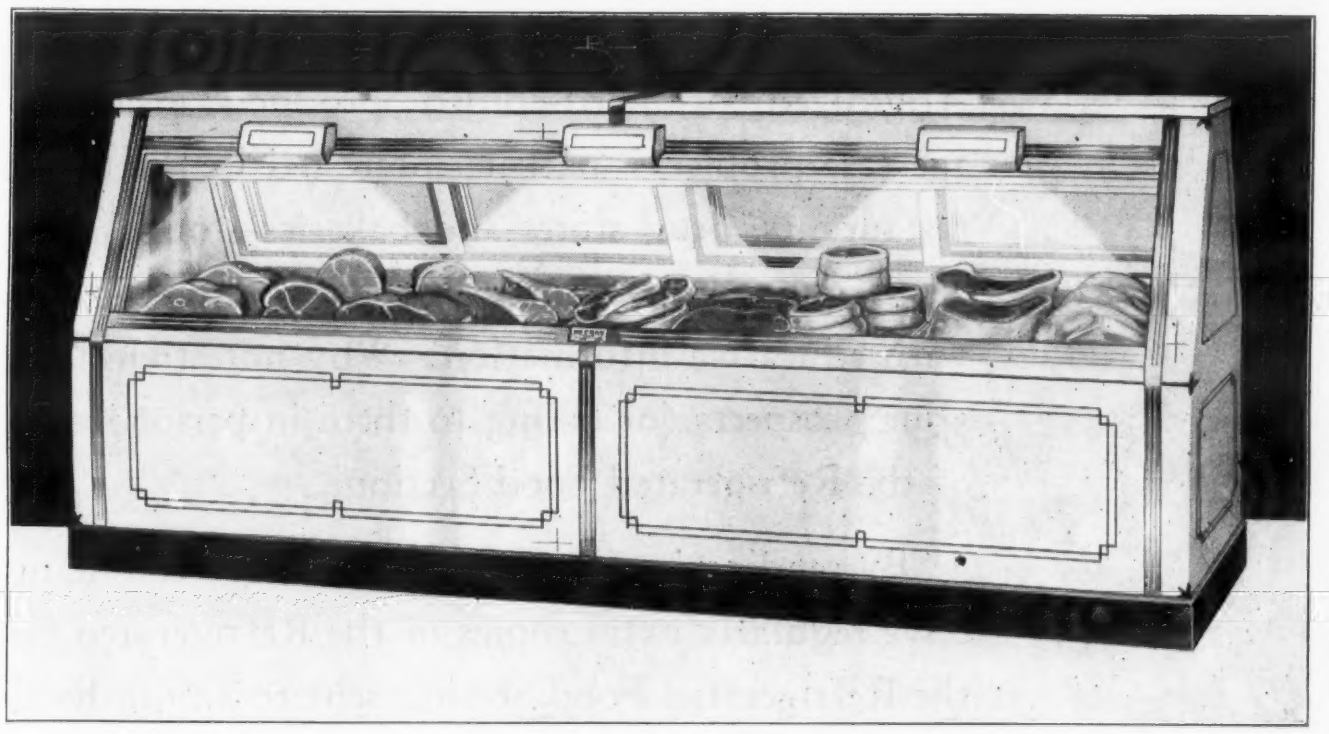
It was necessary to remove a stockroom in order to build the kitchen. The kitchen is attractively finished in green and buff. Lace curtains at the window and door add a touch of domesticity.

New Model Kitchen Brings Visitors to Cushman's in Cleveland

The refrigerator stands out in group of household utilities.

For LOW Temperatures
The McCray Model No. P-110

Designed especially to display the new quick-frozen packaged foods, the McCray Model No. P-110, for machine refrigeration only, is built to maintain required low temperatures and to enable the food merchant to operate most efficiently in this new development of the industry. • • • •



The McCray No. P-110, thoroughly insulated with 4 inches pure corkboard sealed with hydrolene, embodies the same standard of quality and staunch in-built construction which has marked the name McCray for 40 years. This is of utmost importance to every dealer in mechanical refrigeration as it insures efficient, economical operation—the most satisfactory service with any type machine. • The McCray line is complete—there are models for every commercial need. Dealers in machine refrigeration are invited to write for information and descriptive literature. No obligation. • McCRAY REFRIGERATOR SALES CORPORATION, Department 66, Kendallville, Ind. Salesrooms in All Principal Cities. See Telephone Directory.

ALL McCRAY MODELS MAY BE USED WITH MECHANICAL REFRIGERATION OF ANY TYPE

McCRAY Refrigerators

WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

How to make more sales

WHEREVER food is produced, warehoused or sold, refrigeration is receiving a great amount of attention. Articles in the Refrigerated Food Section have told of new refrigeration uses where peaches are picked, where pies are baked, where fish are packed and where candy is sold. The significance of "quick frozen" and "packaged fresh" products is evident to all who have been reading these pages.

For YOU, as a wide-awake refrigeration dealer or salesman ALL these developments mean MORE SALES--not only next month and next year but NOW. By reading the Refrigerated Food Section you keep abreast of "the latest." By USING the Refrigerated Food Section to keep your commercial prospects informed of "the latest" you will find it an excellent sales promotional medium.

Among the food establishments in your community are many people who will find much of interest in this publication. Grocers planning to handle "frosted," "frigidized" or "hard-chilled" products, meat merchants with display and storage-case problems, packers interested in the new freezing processes, chain stores, restaurants, drug stores and bakeries--for all these there is NEWS in these pages. The people YOU want to sell will be more disposed to buy if you furnish them with educative information. Why not strengthen your sales position by sending your prospects (or taking to them in person) selected issues or consecutive issues of the Refrigerated Food Section?

By sending in the coupon below, dealers, manufacturers or any others may receive regularly extra copies of the Refrigerated Food Section. Or, you may order the Refrigerated Food Section sent to any individual address at the special rate of $1.00 for 26 issues.

Use the Refrigerated Food Section to make MORE SALES.

Order for Refrigerated Food Section

Electric Refrigeration News,
550 Maccabees Bldg., Detroit, Mich.

☐ Please send ..... copies of the Refrigerated Food Section for .....
..... consecutive issues ($10 per hundred—10c per copy).
☐ Please send Refrigerated Food Section for one year—26 issues ($1 per year).
☐ Check ☐ P. O. Order ☐ Cash is enclosed herewith.

Name .....

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OIL BURNER Number

Buyer's Guide Section

IN THREE PARTS Part Three

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

ISSUED EVERY TWO WEEKS
VOL. 5, NO. 2, SERIAL NO. 104

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DETROIT, MICHIGAN, SEPTEMBER 24, 1930

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TWO DOLLARS PER YEAR

Side Line Builds Profits, Cuts Overhead

Both Products Must Be Pushed To Meet Competition

By Frank W. Gray

SEVERAL years executive experience with an organization which handled both electric refrigeration equipment and oil burners, coupled with frequent contacts with other companies with similar set-ups, convince the writer that refrigeration and heating equipment may be handled very well together—with certain reservations.

There are several good reasons why an electric refrigeration dealer, particularly a dealer who is operating in a moderate sized city, finds it to his advantage to add one or more aggressive specialty lines to his business.

In the first place, there are certain times during the year when refrigeration sales are bound to drop below normal, and when the time of the salesmen and service men could be partially devoted to other work.

Expansion Limit

Also, there is a limit to the expansion of a refrigeration business in a moderate sized city.

A good side line offers the dealer an opportunity to employ more capital in his business, to increase his organization, and to build up his sales volume with greater subsequent profits.

This can be done with very little extra general overhead, and without much additional expense.

From the standpoint of sales development, oil burner agencies operate in very much the same way, and with much the same type of organization, as refrigeration agencies. The aggressive customer canvass, and the same methods of demonstration produce results in each case.

Even oil burner sales arguments, stressing economy, convenience, cleanliness, and comfort, are strikingly like those of electric refrigeration. In each case the unit of sale is such that time payments characterize the majority of deals.

Technical Knowledge

Oil burner salesmen are required to assimilate about the same amount of technical knowledge as refrigeration salesmen. As a matter of fact, many oil burner salesmen have been known to succeed in refrigeration sales, and vice-versa.

In spite of the similarity in the methods of handling the two lines, however, consistent and concentrated specialty sales effort is necessary to win out against competition in either field.

This means that the dealer must not allow his salesmen to vacillate from one product to the other, according to their daily whims, but must strictly departmentalize his business so that there is no confusion or conflict of sales effort.

An expert refrigeration man should be left in exclusive charge of the refrigeration sales, while a seasoned oil burner man should take over the heating department. Those salesmen who are to some extent dividing their time may then report to either department head for instructions, and may depend upon him for help in closing.

(*Concluded on Page 5, Column 4*)

OIL BURNER IS HISTORY MAKER—GREENWOOD

New York, N. Y.—The modern oil burner marks the latest step in man's subjection of his most useful servant, fire, says Ernest Greenwood, author of "Prometheus, U. S. A.," recently published by Harper & Bros., New York. Mr. Greenwood reviews the application of fire to human uses, and traces its development in his new book.

Fire, according to ancient tradition, was discovered by Prometheus. Since then, says Mr. Greenwood, history has been made, by the "battle of the fuels," with wood already vanquished, coal finding a more important use as a raw material, and the field of future conflict left to gas and oil.

Refrigeration Dealers Provide Outlets for Oil Burners

Established Specialty Selling Organizations Seek Profitable Related Merchandise to Offset Seasonal Fluctuations

WHAT'S NEXT?

Previous issues of the Buyer's Guide, commonly known as the "pink section," of the NEWS have dealt with commodities needed by dealers and distributors. Office equipment, delivery equipment, and electrical advertising were considered in the order named.

To dealers who are seeking a means of spreading out their sales loads over a longer period, this issue of the Buyer's Guide presents oil burners as a tried-and-proved sales companion for electric refrigeration.

The next "pink section" will be devoted to another line of merchandise which may fill the need for an added products; namely the radio.

Aggressive Dealer Sells Several Specialties

Ann Arbor, Mich.—Many famous names have been broadcast to the world from this town, for it houses the University of Michigan; and Fielding H. "Hurry Up" Yost has seen to it that athletes like Oosterbaan, Friedman, Heston, Kipke and Tolan were not born to blush unseen.

Ann Arbor business men will tell you, moreover, that an up-and-coming specialty salesman who opened a shop here a year ago is also deserving of special recognition. His name is E. B. French, and he is a shining example of what a live dealer can do with the electric refrigerator-oil burner combination.

Last year, in the face of an economic depression, Mr. French had the nerve to cut loose from a first class job with the Silent Automatic Corp. in Detroit, move to Ann Arbor, and go into business for himself.

How well Mr. French and his organization have succeeded is attested by the Ann Arbor city clerk, who issues permits for the installation of oil burners. This clerical gentleman is authority for the statement that out of all the oil burners installed in Ann Arbor since Mr. French arrived on the scene, only one was not sold by the latter.

Silent Automatic was Mr. French's first franchise. With oil burner literature in his pockets and arguments in his mind, he pounded the streets of Ann Arbor. These streets were not unfamil-

(*Concluded on Page 5, Column 2*)

If somebody were to tell an oil burner salesman that an old friend had been having considerable trouble with his heating plant—it was either too hot or too cold—and was definitely looking for a device of some kind which would give him an even, satisfactory temperature throughout the year, the salesman (if worth his salt) would scarcely wait to say "thank you" and "good-bye" before making a bee-line to this made-to-order prospect.

In this issue of its Buyer's Guide, ELECTRIC REFRIGERATION NEWS is giving a similar tip concerning a "red-hot" prospect to the oil burner industry. Thousands of old friends of this business newspaper, dealers in electric refrigeration scattered all over the world, are searching thoroughly for a satisfactory merchandising line which, added to their refrigerators, will even up their sales curves and help them keep their organizations intact.

Oil burner manufacturers will find a ready-made dealer market for their products in the refrigeration industry. These dealers have learned through experience that their overhead expenses mount up during the fall and winter months when sales are as scarce as jobs have been this year, and that to keep top-notch salesmen on the payroll with satisfactory remuneration throughout the year is a definite problem.

Peak months for electric refrigeration sales come in the spring and early summer. In the oil burner realm peak months are reached in autumn. And sales managers are convinced that progressive dealers can extend the heavy sales period for modern, easily-installed oil burners through the winter—when they are most needed.

The pairing of these two merchandising lines will give the dealer and his salesman a chance to distribute their top earnings over a period almost twice

(*Concluded on Page 4, Column 3*)

CONVENTION INSPIRES DEALER TO SELL FOUR BURNERS IN 24 HOURS

Champaign, Ill.—C. W. Hagerman believes in conventions. Bloomington, Illinois, scene of the 1930 Williams Oil-O-Matic dealers' convention, is just a short ride from Champaign, and Mr. Hagerman attended the sessions from beginning to end.

So much inspiration and enthusiasm did he draw from this convention that he returned to Champaign and made four sales within 24 hours after the last session had closed.

EXHIBITS A, B, C, D, E

Concrete evidence of the fact that oil burners and mechanical refrigeration are an excellent sales combination is furnished by five companies which manufacture both articles. These concerns are:

WILLIAMS OIL-O-MATIC HEATING CORP.

WAYNE HOME EQUIPMENT CO.

SUPER OIL HEATOR CO.

INTERNATIONAL OIL HEATER CO.

PERFECTION STOVE CO.

The last named concern makes an oil-burning refrigerator; the rest manufacture types powered by electricity. Their success and the success of their dealers demonstrate that the two lines present a dual merchandising opportunity which should not be overlooked.

Stiles Completely Equips Grand Rapids Homes

Grand Rapids, Mich.—The Stiles Housekeeping Shop, founded on the idea that a specialty selling organization which can successfully merchandise one household appliance will do as well for other mechanical aids for the home, made its appearance here this summer. It was an outgrowth of the old Stiles Material Co., but is an entirely new organization, with expansive new headquarters.

The two headliners of the Housekeeping Shop are Norge refrigerators and A. B. C. oil burners. Other appliances include Easy washers and ironers, and electric ranges. Radios will be added soon, according to M. Van Strein, general manager.

"Electric refrigeration and oil burner sales work together beautifully," claims Mr. Van Strein. "We find that our crew of 24 salesmen can sell one appliance almost as well as another. There is no valid reason why an electric refrigeration dealer should curtail his possibilities of greater and more even revenue by sticking to one line. The first appliance is a wedge for the sale of a second; and the addition of a second line increases revenue from the first."

One of the features of the Stiles organization's selling plan is the home demonstration of all appliances.

Simple, Effective Display of Companion Products

For four and one-half years the Domestic Service Co. of Perth Amboy, N. J., has been averaging 100 sales and installations of Wayne oil burners per year in its territory. Sales of Wayne electric refrigerators are also mounting high. Above is a picture of their salesroom at 252 Madison Ave., where the two products are always displayed side by side. Neatness and simplicity are the keynotes of this showroom.

Executive Sees Big Field in Oil Heat

Public Acceptance Established; Market Wide Open

By John A. Berghoff
General Manager, Wayne Home Equipment Co.

ELECTRIC refrigerators and oil burners are very closely allied, as both are instruments for the control of temperature, both go into the home or commercial establishment, and both require house-to-house sales effort, or, in other words, specialty-selling man-power, for results.

The peak selling period on oil burners has, up to this time, been from the 15th of August to the 15th of November. Statistics show that 50% of all oil burners are sold at this time, as compared to the peak sales months on refrigeration from the 15th of March to the 15th of June.

Oil burners, however, can and should be sold from September to March, or during the heating season; because it is during this time that the public is heat-conscious. With the question of maintaining furnace fires, and basement drudgery, uppermost in their minds, every coal fire suspect is a mighty good oil burner prospect the minute the outside temperature gets below 60°.

Advertising Necessary

The public has accepted automatic heat as a luxurious necessity that outranks even the automobile, should the owner ever be called upon to deprive himself of one or the other. It remains for the manufacturer and dealer to make a proper fight, and to put forth the necessary educational advertising to get the tremendous volume which is awaiting their intelligent solicitation.

There are many splendid types of oil burners on the market, and practically all of them are today extremely efficient, safe, and dependable. With the perfection of the many control devices, there is little to be desired.

It is now possible to install an oil burner in a home into any type of heating plant, set the thermostat in the fall, let the fuel oil company check your outside storage tank once or twice per month, and maintain June weather in your home automatically until spring without any care or attention.

Air-Cooling Plant

You can further add to your comfort by equipping this same home with an air-cooling and humidifying plant and by refrigerating the water, thus maintaining this same 75° temperature throughout the summer.

The oil burner industry has had the same problems of installation to overcome that the refrigeration industry had. Yet today it is possible to purchase self-contained oil burner equipment that will permit readily installation, and like its sister, the electric refrigerator, it can be set into the home on trial. This is the surest means of getting public acceptance.

We have several hundred dealers in the United States who have made a success in handling both electric refrigerators and oil burners through the same organization.

It is absolutely necessary that the individual electric refrigerator dealer or distributor fortify himself with at least one additional major line, such as oil burning equipment, not only to be able to maintain a competent retail sales force, but

(*Concluded on Page 5, Column 3*)

HERE'S A SALESMAN WHO KEEPS MANY IRONS HOT

Atlanta, Ga.—Sales managers who are dubious about the ability of their salesmen to sell more than one specialty at a time should interview E. E. Holloway, of Greensboro, Georgia, member of the Georgia Power Co. organization.

On August 8 Mr. Holloway sold one Paul pump, one G. E. refrigerator, and one Hotpoint electric range. The total value of these sales-made-in-one-day was $1,363.50.

Engineer Describes Domestic Oil Heating Systems

Expert Reveals How Oil Burner Unit Operates

By Stanley Perry
Assistant Chief Engineer, Automatic Burner Corporation

THE various units of all oil heating systems are substantially the same, consisting of: first, a tank for oil storage, which, if small (not over 275 gals.), may be directly connected to the burner, or, if larger, must be connected through an intermediate pump which controls the flow of oil; second, the necessary oil piping; third, the burner unit, and fourth, the automatic control system.

The function of the burner unit is to properly proportion and mix the oil with the air required for combustion. One gallon of oil requires approximately 1,500 cu. ft. of air. Any air supplied in excess of this amount is termed "excess air." All burners require at least a small percentage of excess air, the better ones operating with as little as 10 to 20%, while poor burners may require as much as 100 to 200% excess air. The percentage of excess air required to produce smokeless combustion is a very definite indication of the burner's efficiency.

Practical Example

As a practical example, the efficiency of a burner using 20% excess air would be 80%, whereas a burner using 200% excess air would be operating with an efficiency of only 40%, requiring twice as much oil.

The efficiency of a burner is governed, first, by its design, which must provide for properly metering and atomizing the oil and mixing it thoroughly with the required amount of air; second, by the installation and adjustment; and third, by the type of heater in which it is installed.

Some progress has been made in developing special boilers for oil burning. Such boilers combine the large fireboxes common to coal-burning boilers with the long, narrow flue passages peculiar to gas-burning heaters. However, most oil burners must be installed in boilers designed for coal.

Heat is transmitted from flame to heater principally by two methods:

1. Direct radiation from a luminous flame to the firebox walls.

2. By convection, or the wiping of the hot gases against the heating surfaces.

Radiation

In coal-fired heaters approximately 50% of the heat is transmitted by radiation and direct conduction from the incandescent bed of fuel to the primary or direct heating surface. The secondary heating surface is relatively inefficient.

This fact must be kept in mind when adapting oil burners to heaters designed for coal. For this reason the typical bright orange flame is regarded as being effective in ordinary boilers, approximately 30% of the heat developed being transmitted directly to the firebox walls.

The color in such a flame is produced by tiny particles of incandescent carbon, which provide a very effective means of radiating heat.

Blue flame burners are generally more quiet in operation and for this reason have found a ready market. However, the noise produced by a properly designed orange flame burner is almost negligible, and the efficiency is relatively high.

The efficiency of heat absorption is indicated by the temperature of the gases leaving the heater, or actually, in some cases, the temperature at the chimney top, where the heat radiated from the smoke pipe and chimney is delivered within the building.

The percentage of excess air required, and the combustion efficiency of the burner, are determined by the percentage of carbon-dioxide in the flue gases. An analysis showing 15% CO_2 indicates perfect combustion with no excess air; 12½% CO_2, approximately 25% excess air; 10% CO_2, 50% excess air, etc. 12½% CO_2 is generally regarded as a high standard, as some excess air must be allowed to take care of draft changes and other slight variations in operating conditions.

The sensible heat loss includes only the heat carried away by dry stack gases. To this must be added the loss in water vapor (not condensed) that results from the combustion of the hydrogen in the oil. As the percentage of hydrogen is fairly uniform, this loss may be regarded as a constant, approximately 6.8%. Since the better burners produce no appreciable amount of carbon monoxide, the CO loss may be neglected.

Oil Burner Ignition Systems

Domestic oil burners are designed for intermittent service, operating the heating plant at maximum efficiency when heat is necessary, and cutting off completely when no heat is required. Consequently, some means must be provided for igniting the oil and establishing combustion at the beginning of each operating cycle. Various means of ignition are in use.

OIL PILOT FLAME. When an oil pilot is used, a small amount of oil is burned continually while the burner is off.

GAS PILOTS. Gas pilot flames are in common use.

ELECTRIC IGNITION ATOMIZING BURNERS may be ignited by an electric spark, and transformers have been developed which produce an intensely hot arc over a gap of three-sixteenths or one-fourth inch.

GAS-ELECTRIC IGNITION: To reduce the cost of gas ignition, a large gas jet is sometimes turned on for a few seconds when the burner starts, an electric spark being provided to ignite the gas.

MAGNETIC-GAS IGNITOR is built in one small compact unit supplied by a single gas connection. It consists of a small permanent gas pilot, regulated by a very fine needle valve adjustment, and a magnetic valve controlling a large secondary gas jet. When the burner starts, the magnetic valve opens the secondary jet, which is ignited by the permanent pilot. As soon as combustion is established the safety control on the burner cuts out the secondary gas jet.

Automatic Control Systems

Automatic control systems are of two general types, high voltage and low voltage, according to whether the thermostat circuit is full 110-volt, with approved wiring, or less than 25 volts using "bell" wire circuits.

Practically all controls are of the interlocking type, the various units being so inter-connected electrically that proper sequence of operation is assured, and so that in case of improper operation the controls go into "safety," which shuts off the burner completely until the reason for the failure has been corrected and the controls manually "reset" to reëstablish the proper operating cycle. All control systems are arranged to start the burner automatically after a shut-down due to voltage failure.

The principal units of a standard control system and their functions are as follows:

THE ROOM THERMOSTAT: An automatic switch, responsive to room temperatures, designed to "make" an electrical circuit to the burner when heat is required, and to "break" the circuit when the desired temperature has been attained.

THE BOILER CONTROL: An automatic switch operated by pressure of steam boilers, or by temperature of hot water systems, to keep the pressure or temperature within desired limits.

THE FURNACESTAT regulates the temperature of a warm-air heater.

THE RELAY, known by various trade names, generally consists of one or more electro-magnets operating switches arranged to interconnect the various control units and the burner.

THE STACK-SWITCH, also known as Pyrostat, Protecto-stat, etc., is a switch responding to the presence or absence of heat. It performs various functions, such as cutting off the ignition after combustion has been established, and preventing the burner from again being started until all gases have left the furnace.

THE TIME-SWITCH or "Safety" stops the burner entirely when for any reason proper, safe operation is not secured.

SURFACE AQUASTAT: A water temperature control installed on the surface of hot water mains to simplify installations.

THE LOW-WATER CUT-OFF is a float-operated switch which prevents the burner from operating when the water level in the boiler is below a safe point. The low-water cut-off may be combined with the pressure control in one unit.

The Cost of Oil Heat

In spite of the fact that oil heat offers so many advantages in handling, cleanliness and temperature regulation, it is often desirable to know just how the cost in dollars compares with the cost of other fuels. Such a comparison, to be of real value, should make allowances for the following items:

1. Saving in basement space, either in original excavation or in making room available for other uses.

2. Saving on redecoration and cleaning.

3. Saving in manual labor, particularly where women care for the heater.

4. The greater degree of comfort attained through atmospheric temperature control.

5. The more efficient use of liquid fuel.

All except the last item can be left to the judgment of the architect and home owner.

The actual dollar cost of heat on this basis then depends on the efficiency with which the various fuels can be fired, the potential heating value of the fuel, and the unit cost of each delivered into the house.

Efficiency

Laboratory and field tests generally indicate the average seasonal efficiency to be expected with each fuel as follows:

Coal—in ordinary heaters....40 to 50%
Oil—in ordinary heaters.....50 to 70%
Oil—in specially designed heaters .....60 to 80%
Gas—in specially designed heaters .....70 to 80%

With a good standard boiler and coal properly fired, we can assume an efficiency of 50%. With one of the better oil burners in the same heater, we can obtain an efficiency of 70%.

Gas, on account of cost, is not to be considered, except for use in especially designed heaters where an efficiency of 80% can be attained.

An oil burner, being primarily a gas-producing machine, can produce results comparable with gas, when installed in specially designed heaters. However, we generally consider oil as used in heaters designed for coal.

In either case, various oil burners will operate with quite large variations in efficiency. It must also be understood that automatic control throughout the season is responsible to a great extent for the higher efficiencies obtained with liquid fuels.

The B. T. U. values of the various fuels are well known:

Coal—10,000 to 14,000 B. T. U. per lb. average..... 12,000
Oil—average furnace oil, B. T. U. per gal 140,000
Gas—manufactured, B. T. U. per cu. ft..... 550

Unit cost: Accurate data on the unit costs of the various fuels is obtainable in each locality.

Comparison: A comparison of fuel costs can be made, based on the above data.

Comparing Coal and Oil

(1) 1 Ton of coal, 2,000 lbs. at 12,000 B. T. U. per lb. = 24,000,000 B. T. U. At 50% efficiency 1 ton of coal delivers 24,000,000 x .50 = 12,000,000 B. T. U.

(2) 1 Gal. oil, 140,000 B. T. U. per gal., at 70% efficiency delivers 140,000 x .70 = 98,000 B. T. U.

(3) Heat delivered per ton of coal, divided by heat delivered per gal. of oil, equals gallons of oil equivalent to one ton of coal.

$$\frac{12{,}000{,}000}{98{,}000} = 122.5 \text{ gallons per ton.}$$

On this basis, with oil at 7½c, 122. x .07½ = $9.19, which is the cost of oil equivalent to one ton of coal.

(4) Heat delivered per ton of coal divided by heat delivered per 1,000 cu. ft. of gas equals thousands of cu. ft. of gas equivalent to one ton of coal.

1,000 cu. ft. gas at 550 B. T. U. per cu. ft. = 1,000 x 550 = 550,000 B. T. U. per 1,000 cu. ft.

At 80% efficiency, 1,000 cu. ft. of gas delivers 550,000 x .80 = 440,000 B. T. U.

$$\frac{12{,}000{,}000}{440{,}000} = 27.3 \text{ thousands of cu. ft.}$$

Gas for heating purposes generally costs not less than 75c per 1,000 cu. ft. 27.3 x .75 = $20.48, the cost of gas equivalent to one ton of coal.

In general, it will be found that oil will cost approximately the same as coal, and that gas will cost at least twice as much as either oil or coal.

The above figures may be altered to suit specific problems, but the same general principles can be used in making similar calculations.

It can be safely said that the use of the best oil burners in standard heaters will not be objectionable from the standpoint of fuel cost. The cost of oil heat will be governed by the type of burner selected, the intelligence used in its installation and adjustment, and the efficiency of the heater.

Classifying Oil Heating Systems

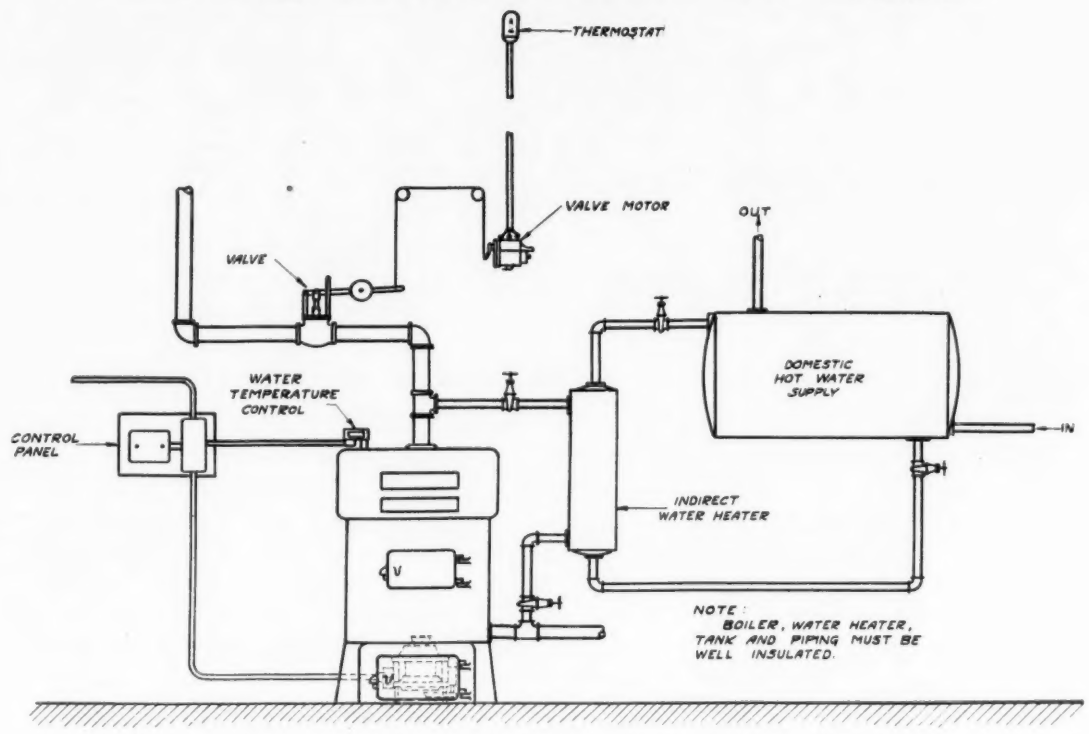
Oil heating systems may be classified in various ways, such as the method of supplying the air for combustion, natural or mechanical draft; the method of feeding the oil, either by gravity or pump; the method of preparing the oil for combustion, vaporization or atomization; and sometimes by the type of flame produced, such as jet cone, circular ring flame, circular flat flame, blue flame, orange flame, etc. These various designations should be used strictly in accordance with their technical meaning, although they are often misused with confusing results.

The most common classification is according to draft. Natural draft burners, of course, depend on the chimney draft to supply air for combustion. Mechanical draft systems are provided with a motor fan or blower. In many burners a primary supply of air is furnished mechanically and mixed with oil to start combustion, the secondary air supply to complete combustion being furnished by natural draft.

The oil supply may be either "gravity feed," that is, fed to the burner by gravity from an elevated tank, pump feed (direct from a storage tank to the burner), or a combination of the two. In the latter case, oil is pumped from

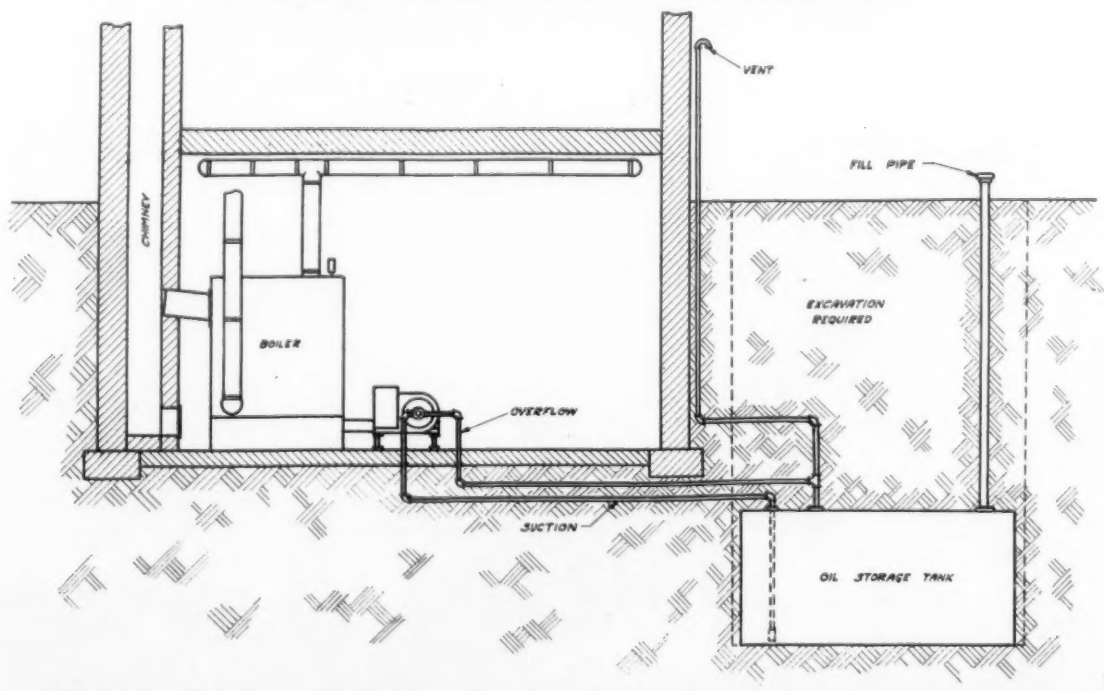
(Concluded on Page 3, Column 4)

Insuring Constant Hot Water Supply



To secure domestic hot water supply from an oil burner installed in a hot water heating system, a cast iron shell enclosing a copper cell is employed. The shell is connected to the boiler below the water line, and the coil is connected to the hot water supply tank. The tank should be horizontal and completely above the level of the heater. Sectional steam boilers must have a tap in each section at the top. A single return connection to the bottom of the boiler is sufficient.

Underground Tank Installation



Underground storage tanks are usually buried beneath the lawn, but when necessary they can be located under driveways, sidewalks, or even basement floors. The fill pipe should be brought to a convenient point, and a vertical pipe run directly to the surface for gaging, pumping out water, etc. A vent pipe not less than one inch in diameter is required. Underground tanks must be thoroughly coated on the outside with tar, asphaltum, or suitable rust-resisting paint.

Williams Man Tells How to Choose Oil Burner

By P. A. Celander
Chief Engineer, Williams Oil-O-Matic Heating Corp.

WHILE oil burners and electric refrigerators—their design, their production problems, and their marketing problems are kindred—it must not be assumed that every oil burner dealer will be successful in handling ice machines, nor that every refrigeration dealer will be successful in handling oil burners, unless certain vital factors are considered.

Oil burners are sold to be placed in the basement, and unfortunately their design and appearance is too seldom given a great deal of consideration. Refrigeration units are sold to be placed in the kitchen, where the proud housewife usually decides upon the purchase, and appearance is consequently of paramount importance.

It must be said in favor of the successful refrigeration dealer that he has a better appreciation of what it means to properly display and sell his devices through eye appeal than can be said of the average oil burner dealer. The refrigeration dealer will appreciate that an oil burner having sales appeal can have its sales easily promoted through the same methods he has used in selling refrigeration.

Factors to Consider

In choosing to represent a manufacturer of an oil burner or a refrigerating unit, it is important for any dealer to consider the factors which will make him feel reasonably certain of success, provided that he, as a dealer, will do his share. These factors, so far as an oil burner is to be considered, are as follows:

The device must be fundamentally sound.

It must be practical to install and service.

It must be efficient in its operation.

It must be simple, yet incorporate all essential parts.

It must be durable.

It must have sales appeal.

The company making it must have stability.

Installation of burners will, of course, vary for different heating plants.

The engineering department of the Williams Oil-O-Matic Heating Corp. has published a booklet showing typical installations of different kinds which guide the dealer and the service man in installing Oil-O-Matic burners under varying conditions.

The efficiency of an oil burner will, of course, vary with different installations, and various factors contribute to general efficiency.

Combustion Efficiency

Without going into long discussion of the subject, it can be mentioned that good combustion efficiency is obtained if CO_2 (carbon dioxide) results of 12 to 15% can be recorded. CO_2 readings from 10 to 12% can be considered fair, but anything below 10% indicates poor combustion.

Considering the almost human things which an oil burner is called upon to do, they are relatively simple. It must be remembered that these devices maintain a constant temperature in tens of thousands of homes, and go through season after season of operation without any thought ever being given to them.

The thermostat in the living room is often the only device which is ever touched from one season to another. There is nothing complicated about an oil burner or its installation, but it is important that every dealer have an understanding of what is necessary to give an owner the maximum of heating service from the installation he makes.

Ten Years of Service

Many oil burners have seen more than ten years of service and are still going. The first machines were, of course, crude in design compared with present day models, but the important thing for the refrigeration dealer, who is interested in becoming an oil burner dealer, to know is that oil burners are not new and untried devices.

All Oil-O-Matic burners are self-contained units. Room thermostats, boiler controls and the combustion "safety" are shipped separately. Either low voltage or high voltage controls may be used.

Plain or clock thermostats may be installed. The plain thermostat maintains constant temperature at whatever point the dial is set throughout the 24-hour period; whereas, the clock thermostat may be set for the temperature desired during the day, and a lower temperature chosen for night operation. These temperatures are then maintained automatically.

The Oil-O-Matic metering pump is a device which measures the oil drop by drop before it is delivered to the nozzle for combustion. A different grade of oil may be used at one time than at another, but the metering pump functions in identically the same manner regardless of change in oil or climatic conditions. The function of the metering pump is to deliver, under all conditions, a predetermined specific amount of oil.

The diffusor on Oil-O-Matic burners is of recent development. It is designed to effect quiet operation of the burner, possible uniform operating pressure, and intermingling of primary air with oil.

The control mechanism on Oil-O-Matic burners is of Williams design. On the larger model "J" Oil-O-Matic burner this control functions from air pressure produced by the atomizing pump. On the Oil-O-Matic Junior Model this control operates from the starting torque of the motor. The entire motor pivots on a trunnion, and the full power of starting torque causes oil valve and ignition to function.

The Williams Oil-O-Matic Corp. feels that oil burners and ice machines are products which can be sold by the same organization, and that every refrigeration dealer is letting a most unusual opportunity go by if he fails to give due consideration to the business possibilities which await him in the field of heating.

Laws of Oil Heating

LAW NO. 1

OIL MUST BE BROKEN UP. It is difficult to light solid paper, as a book for example.

LAW NO. 3

OIL MUST BE MIXED WITH AIR. A match held in the air on a pin will burn completely. A lighted match thrown in an ash - tray will have its flame extinguished.

LAW NO. 2

OIL MUST BURN IN SUSPENSION. A match held in the open burns clean and free. If the flame touches something — soot is always formed.

LAW NO. 4

OIL BURNS BEST IN PRESENCE OF A REFRACTORY MATERIAL. On warm days heat is reflected between buildings in large cities.

Engineer Classifies Oil Heating Systems

(Concluded from Page 2, Column 5)

the main storage tank into a small container attached to the pump and mounted (generally on the wall) above the level of the burner. The feed from the container to the burner is by gravity.

Oil can be prepared for combustion either by vaporization or mechanical atomization. Vaporization, as the name implies, is the process of gassifying or vaporizing the oil by the application of heat. This method is only applicable to the lightest grades of oil. Mechanical atomization actually breaks the oil into minute particles or globules so fine that they immediately gassify and burn when thrown into the combustion zone.

Several methods of mechanical atomization are in use:

(1) Forcing oil under high pressure through small orifices or nozzles.

(2) Mixing the oil and primary air in small rotary compressors, and discharging the mixture through a nozzle.

(3) Throwing the oil by centrifugal action from a revolving disc or cup.

Oil burners are further classified by the type of flame produced. A pot or retort burner has the flame more or less concentrated directly above the firepot in the center of the heater. The jet type burner throws a long, thin jet of flame from the nozzle. The cone type has a wider spray angle and a shorter, heavier fire than the jet type. The rotary types produce either a thin, circular ring of bluish fire around the firebox walls, or a flat circular sheet of orange-colored flame that covers practically the entire area of the heater.

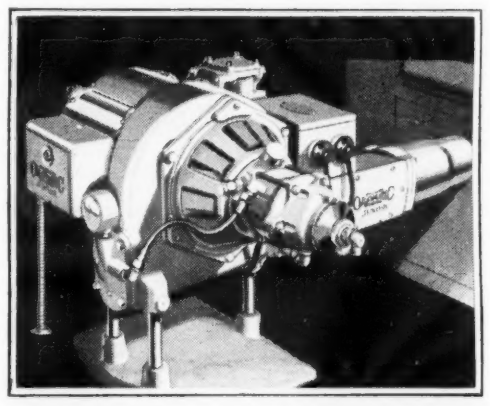
Circular flames of both the ring and flat types are produced by vertical spindle rotary burners. The first burners of this type were driven through bevel gears from a motor located outside of the boiler. More recent practice is the use of a vertical motor in the ash-pit, providing a direct drive for the atomizer.

It would appear that modern domestic burners are developing along two distinct lines: the high-pressure nozzle type with a blower supplying low pressure air, producing an orange-colored, cone-shaped fire; and the vertical motored rotary type, completely enclosed in the ash-pit of the heater, producing a round, flat orange-colored flame.

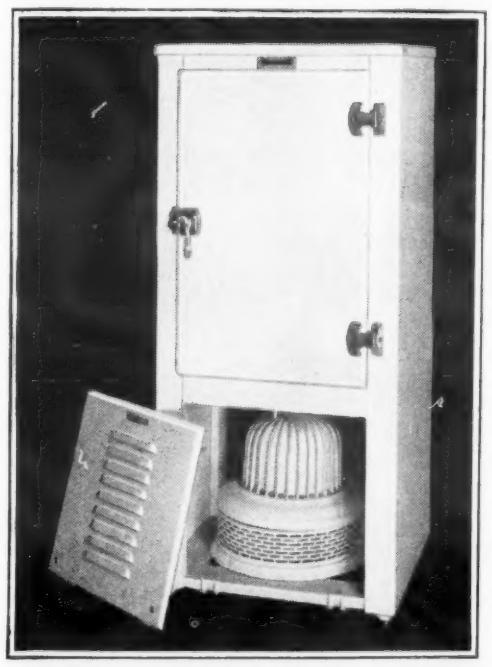
NEW FRANCHISE

Waterbury, Conn.—The Majestic May Corp. has been granted a Connecticut charter to deal in electric refrigerators, oil burners, etc., with an authorized capital of $50,000.

Double your selling season by selling OIL-O-MATIC *with* ICE-O-MATIC



Low priced Oil-O-Matic Junior burner



Ice-O-Matic Capitol showing sealed unit

HUNDREDS of foresighted refrigeration dealers, in small towns and large cities, have proved they can double their profits by selling *both* Williams Oil-O-Matic automatic oil heating and Williams Ice-O-Matic electric refrigeration. You can add either one, or both of these profitable specialties to your present lines! Double your selling season without increasing your overhead expense.

It is logical, and certainly more profitable, to concentrate your sales efforts on refrigerators during Spring and Summer months—and to meet the demand for oil burners during Fall and Winter months. Other dealers are doing this—and are making more money.

Williams is a big organization, soundly financed and splendidly equipped. Williams has a record of more than twelve years steady growth in the home utilities field. Williams offers you one dependable source of supply for these two related lines of merchandise. Williams offers you nationally recognized and nationally advertised products—plus helpful cooperation. You will not be forcibly overstocked—or forced to compete on a cut-price basis with neighboring dealers.

Investing two cents in a stamp, or a few cents more in a telegram, will quickly bring you *all* the information on these two valuable year 'round franchises. You may choose either Oil-O-Matic or Ice-O-Matic or both. But get all the facts first—then decide. Write or wire for the facts *right now!*

WILLIAMS OIL-O-MATIC HEATING
Listed as Standard by Underwriters' Laboratories

WILLIAMS ICE-O-MATIC REFRIGERATION

WILLIAMS OIL-O-MATIC HEATING CORPORATION
Bloomington, Illinois

More than 3000 dealers in 44 countries are making money selling Williams Oil-O-Matic burners and Ice-O-Matic refrigerators

BUYER'S GUIDE SECTION

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The Highways Cross

TWO years ago this couldn't have been written. At that time the electric refrigeration and oil burner industries were traveling separate roads, heads held high, seeking help from nobody, determined to blaze their own trails and establish themselves permanently in the public mind as purveyors of health. Those trails, blazed at such high cost by hardy pioneers, have become highways pushed far into the heart of America. And today they cross.

That the two industries need each other is now apparent to both groups. The sale of each product follows a definite curve, which rises from a low point at one time of the year to a high peak, and then drops again. Salesmen have three or four fat months to balance against a like number in which they are barely able to eke out a living. Should the two lines be merchandised by the same organization, it is reasoned, dealers could turn sales peaks into a sales plateau, and high-grade salesmen would be able to earn satisfactory incomes throughout the year.

At first, leaders in the electric refrigeration industry were insistent that franchises be granted only to dealers who were willing to handle one big merchandising line alone. Perhaps that was wise. Until the industry could emerge from its swaddling clothes and stand on its own two feet, it was better that refrigeration dealers fight to establish the business on a sound and solid foundation. Now that organizations have been perfected, and the bugs in the products have been smoked out, dealers and distributors are looking around for some means of doing an all-year rather than a seasonal business, in order to cut overhead expenses, knit together and hold their sales forces and increase profits.

Likewise, the oil burner industry was at first confined to exclusive sales outlets. Early models were difficult to install and to service. Only a heating and plumbing concern could cope with the problems presented by the first oil burners. Recently, however, manufacturers have greatly simplified and improved their devices. Installation methods are becoming standardized. And the door is now open to specialty salesmen.

In the past, oil burners have been marketed by too many men who, like some small-time refrigeration dealers, were content to sit in their shops and wait for the public to beat paths to their doors. Moreover, some resented the pressure put on them from home offices, often refused to attend sales and service schools, and continued to do business in their ancient, lethargic manner. Hence, sales managers are now seeking more high-speed specialty selling organizations which know how to advertise, how to ferret out prospects, and how to sell. Noting that there are many hundred thousand more electric refrigerators in use than oil burners, although the latter industry has had several years head start over the former, these sales managers are beginning to flirt in earnest with the boys who have been selling food preservation to a nation.

Marriage between the oil burner and the electric refrigerator is not only commendable because the two products make good business partners, and on grounds of mutual need, but can be recommended because of their affinity for each other. Boxing promoters would call the combination a "natural." Both go into the home, and both provide health insurance. One protects the family from the malicious effects of spoiled food. The other wards off colds and their attendant train of ills by supplying a uniform, healthful temperature. Both, so long as food and warmth remain prime requisites of the human being, are practically indispensable to the well-regulated home.

In bygone days a coal-and-ice dealer provided chills and fever for his customer. Today the combination has progressed to the dealer in oil burners and electric refrigeration. And for tomorrow engineers are predicting an era of even closer conjunction, when specialty salesmen can offer home-owners a device which will both heat and refrigerate their homes, thus providing comfortable, healthful living quarters the year 'round. The relationship seems inevitable.

Off Duty in Bloomington, Ill.

By GEORGE F. TAUBENECK

Martin Insull predicts that the most notable movement of the next two decades will be the decentralization of industry. The advent of superpower, he says, heralds a new era of production at the sources of supplies, and of a general exodus from our packed cities to the fresh air and leg-room of the small towns.

The benefits, the utilities magnate believes, will be tremendous: lower living costs, less labor troubles, improved general health, increased distribution efficiency, reduction of traffic, transportation, and housing problems, diminished crime, etc.

If the president of the Middle West Utilities Co. has the right dope, and many smart men think he has, the Williams Oil-O-Matic Heating Corp. of Bloomington, Illinois, is going to own orchestra seats on the main floor of a great historical drama.

Perhaps a circumstantial accident is as much respo. sible for the location of the Oil-O-Matic factory in a remarkably well-chosen small town as canny forethought.

But be that as it may, it is true that Oil-O-Matic oil burners and Ice-O-Matic electric refrigerators are produced in a town tailor-made for a corporation which is in the advance guard of a mighty industrial movement.

Long before the first Oil-O-Matic was put on the market, C. U. and W. W. Williams, father and son, owned and operated a garage in Bloomington. That garage became their first factory. Hence it was only natural that their business should remain in the town which saw its birth. The Williams factory now occupies several low, roomy buildings at the outskirts of town, adjoining a country club.

As the years pass and their business continues to grow like an adolescent boy, the Messrs. Williams have found themselves increasingly grateful to the city of Bloomington for the fine spirit of co-operation and loyalty which has been one of the increments of their business.

Bloomington citizens are as proud of Oil-O-Matic and Beich's candy (the other big Bloomington industry) as they are of their own offspring. They swear by these products, use them almost exclusively, advertise them wherever they go, and do everything they can to smooth the road for their progress.

Industries in larger cities often find it necessary to go forward in spite of their municipality and its ordinances; but in Bloomington the spirit of co-operation is somewhat reminiscent of the medieval European guilds, and the progress of private enterprise is made easy.

Here's an example of the town's loyalty: When Lucky Strike cigarettes began the "Reach for a Lucky instead of a sweet campaign," which aroused the ire of so many candy manufacturers, Beich's candy officials remained discreetly silent. But not Bloomington citizens.

After several heated protest meetings of various civic organizations of the town, Bloomington business men decided to boycott Lucky Strikes. And boycott them they did.

Young women of the community, toward whom the Lucky Strike campaign was pointed, heeded the advertisements of "that future shadow" out of the corner of their eyes. When they capitulated to its appeal, however, they purchased Chesterfields, Old Golds, and (the hardier of the species) Camels.

These young women, by the way, are one of the most notable features of the town. Visitors often wonder if any boys are ever born in the place.

An answer to this perplexity—two answers, in fact—may be found in one corner of Bloomington, and in the opposite end of Normal, a town which is separated from Bloomington by a narrow street.

Illinois State Normal University resides in the latter place, while Illinois Wesleyan University is an integral part of the former. Both attract large numbers of girls, and comparatively few boys. Thus the speaker sex predominates.

Like Beich's candy and the Williams products, these schools are an integral factor in community life. Their games, social festivities, and other manifestations of collegiate exuberance are attended as religiously as the church functions.

Another example of how Bloomington is completely interwoven with the industries and projects it houses and supports can be drawn from the sports realm. Bloomington has a franchise in the Three-I baseball league. This season a local boy "made the team," which, like all professional outfits, is composed of players drawn from sandlots and barnyards, from Maine's stern and rock-bound coast to California's tropic clime—in other words, from near and far, and far and wide (stop us, somebody).

In midseason the local boy struck a batting slump. The climax was reached when he struck out with the bases loaded in the ninth inning of a crucial contest. He was benched. Immediately arose a howl from the citizenry, a yelp that did not die down until the home-town lad was reinserted into the line-up.

Night baseball, played under powerful floodlights, is just one of Bloomington's many amusements. The town likes to play. High-class are the amusements, too. Good golf, water sports, dancing, movies, and legitimate drama are afforded. Possibly the collegiate atmosphere has something to do with this proclivity for enjoying leisure hours.

"Collegiate atmosphere" reminds us that we can't complete our picture of a self-conscious and professionally loyal small town without mentioning President Davidson of Illinois Wesleyan University. "Prexy" Davidson is not an educator; he is a publicity man, and a traveling good-will agent.

Occasionally he drops around to see what is going on around his school; but five days out of seven are spent making speeches before women's clubs, Rotary luncheons, and the like. It is his task to be a good fellow; and to draw the endowment gifts upon which the college is dependent for its existence. He is, it goes without saying, one of Bloomington's Best Boosters.

The Williams Oil-O-Matic Heating Corp. belongs to a town which gets behind and pushes. Located in the midst of a prosperous farming area, within a few miles of the electrical center of the United States, and possessing good transportation facilities, the Williams factory is profiting daily from the excellent working conditions the town affords.

It bears shining witness to essential soundness of the predicted decentralization movement, the rumblings of which are becoming more and more audible with each passing year.

Refrigeration Dealers Need Oil Burners

(Concluded from Page 1, Column 3)

as long as that enjoyed by an organization which has but one of the two items to sell.

Refrigeration dealers are becoming cognizant of the advantages of this relationship, and are beginning to examine the oil burner industry thoroughly, hoping to find a line which has an intrinsic appeal to them and which appears to dovetail neatly with the merchandise they are already handling.

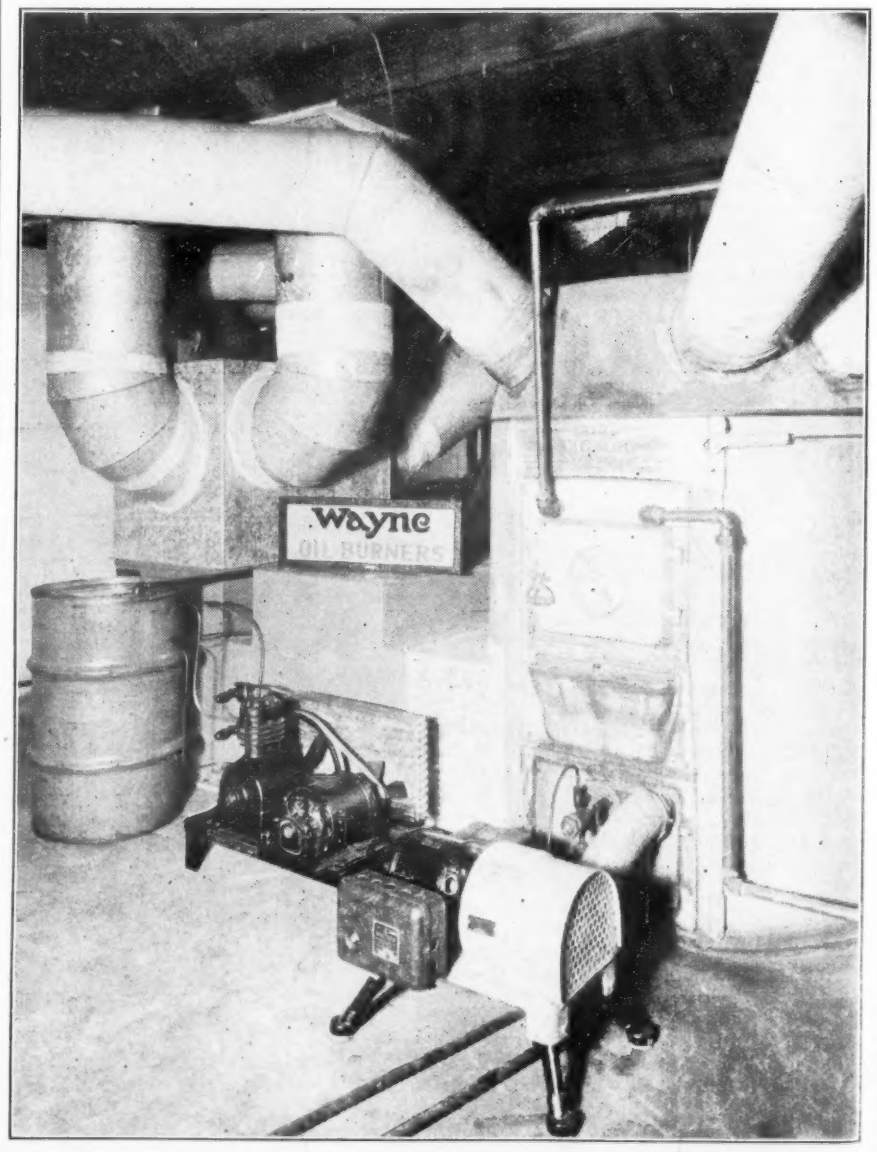
Not only will oil burner manufacturers who are looking for dealers find in the electric refrigeration industry a group of prospects who are already half-sold, but they will find there a high type of specialty selling organization which can scarcely be matched for sales-getting potentialities.

These men know how to sell. They are not only backed, but pushed, by some of the world's largest corporations, and by the gigantic network of public utilities. Intense cultivation of their market has become habitual.

Moreover, the electric refrigeration dealer has a tailor-made prospect list. His refrigeration customers automatically become preferred prospects for oil burners. He has an entry into these homes gained by good service and customer satisfaction.

Oil burner manufacturers who are seeking new sales outlets will find among electric refrigeration dealers men who have a standing in their communities, who have well-equipped display rooms and who know how to advertise, who have high-pressure sales organizations, and who have a market ready and waiting. Best of all, they will find these dealers in a most receptive mood for their message of increased profits and flattened sales curves.

Hot or Cold Air



The Wayne oil burner and electric refrigerating unit join hands in the installation pictured above. Designed to supply either hot or cold conditioned air, as required, the two units function side by side. Specifications and details have not been supplied.

History of Oil Heat Begins in Days of Pharaohs

By Harry F. Tapp
Executive Secretary, Oil Heating Institute

Oil has been used for fuel and for heating since the time of Moses and the Pharoahs. But the mechanical development of the oil burner dates back only sixty years, and only since 1921 has it come into widespread, general use.

While oil in its native state will burn, it will not burn with maximum effect until properly prepared and mixed with air. The history of modern oil heating, therefore, has been written in the records of the search for simple and efficient methods of preparing heavy oils for perfect combustion.

The modern oil burner, which takes the place of the old-fashioned coal fire in the furnace, is the result of some sixty or seventy years of experimenting.

In 1861 a mechanic named Werner, employed in one of the great refineries of the famous Russian oil fields of the Caucasus, first suggested that what was then "refuse oil," in Russian "astatke," be used as fuel.

Werner's Device

Though Werner's burner was not patented until 1867, it was widely used before then. It consisted merely of a series of griddles over which the oil trickled and burned.

During the following year, 1862, two experimenters took out patents on an oil burner which solved the combustion problem by introducing the oil into the furnace in a gaseous state—the heavy oil first being heated and made to give off lighter oils.

In 1863, Brydges Adams brought out and introduced into America the first spray burner; and in 1865, Ayden and Spakorsky each presented a solution—the former using hot air to atomize the oil and the latter super-heated steam. Spakorsky's method was later embodied in an oil burner by Thomas Urquhart, an American, at that time in the employ of a Russian railway.

As in the automobile industry and many others in the astounding list of modern industrial developments, a vast number of tests and trials, made behind closed doors in hundreds of widely separated corners of the world, preceded the oil heating industry's "coming of age."

Ridicule

The public seldom looked behind the curtain and, when it did, it not infrequently ridiculed the pioneering efforts. But in 1893 public interest was stirred when the famous Columbian Exposition in Chicago equipped its boilers for fuel oil and showed graphically what great strides had been made.

It was not until 20 years later, however, that the modern oil heating industry really stepped into the spotlight. In 1917, when the World War raised the cry of conservation, non-essential industries found the stone wall of government control between them and the country's coal supply. Faced by ruin, they cast about for a substitute.

It was then that the manufacturers of an oil-burning motor car hit upon the plan of installing one of their oil burners under a high-pressure boiler. The newspapers got the story and before long oil burners began to spring up all over the country.

Out of this experience came the domestic oil burner. Today more than 500,000 American homes and buildings are warmed by oil heat.

Phoenix Unit Features 'Electric Brain'

Detroit, Mich.—To the progressive refrigeration merchant who wants to add an article to his line which will not interfere with the marketing of his refrigerators, F. C. Gilbert, vice-president of the Phoenix-Detroit Burner Corp., recommends the oil burner.

This product brings the dealer high profits, says Mr. Gilbert, and reaches its highest peak when other business is quiet. Many dealers in his organization are already handling both lines.

Featured on all Phoenix-Detroit oil burners is the "Electric Brain," which is an automatic device designed to relight and start the burner in case the current is cut off. Should the oil supply run out, the "Electric Brain" will automatically relight itself as soon as the tanks are refilled.

Operation instructions, which are confined to directions for throwing a switch, are contained on a small brass plate placed on the "Brain."

The Phoenix-Detroit burner is of the high-low type, which approximates closely the average coal-burning furnace. All moving parts, including the motor, are installed outside the furnace. Nevertheless, the effect of a rotary fire is obtained by a design which causes the fire to rotate by its own combustion in a sillimanite receptacle.

Classified Prospect List Prepared For Use of New Dealer

In answer to the question, "Who are my prospects?" the house organ of the Wayne Home Equipment Co., *"The Wayne,"* lists the following suspects which can be made prospects, and tells you why:

1. Private Residence. When the homeowner, landlord or tenant has either the capital or earning power to meet the monthly payments required.

2. Apartment Building. For either heating plant, hot water service or incinerator.

3. Small Hotel or Rooming House. For either heating plant, hot water system or incinerator.

Retail Store

4. Retail Storeroom. Whether occupied by owner or tenant, it should have automatic heat to insure high rental value. Owner cannot afford to fuss with furnace. The same amount of time spent in extending his business will prove much more profitable. More economical to sell waste paper, wooden crates, etc., than to suffer loss due to damaged heating plant, overheated or under-heated building, etc. Value of clean basements and extra room very important. Many dealers now use their basements for regular business. They are cool in summer and easily heated in winter.

5. Garages. Require twenty-four hours' continuous heat, and both owner's and mechanic's time are too valueable to spend shoveling coal. Safety feature important due to fact that controls prevent stored cars freezing up at night, etc.

6. Chain Stores. All pay high rents and need heat at night and over holidays and Sundays. All could use basement with open stairway to center or side of store and increase their sales for the slight cost of remodeling basement and installing oil burner.

7. Office Buildings. For main heating plant, for utilization of basement, for barber shop, boot black, beauty parlor, dentists' and doctors' offices, etc. All tenants of office buildings should be solicited from door to door for home oil-burner installation.

8. Prospective Home Builders. The man or woman who objects to buying an oil burner for their present home because they are contemplating building next year or so is a splendid prospect for both old and new home. They should install a small oil burner in their present home, with inside tank if possible, and enjoy its comforts now. This will also help them solve their future heating plant requirements. The oil burner can either then be moved into the new home, or left in the old one to help secure and hold a tenant or help in its sale. No home can be sold or rented to an apartment house tenant without automatic heat.

9. Municipal police stations, fire departments, incinerators, electric pumping stations, air ports, garages, etc., are all prospects and should be worked regularly. All need both automatic heat and hot water systems.

Florists

10. Greenhouses, Florists, Dairies, Dry Cleaning Plants, Tailoring Establishments, etc., all need intermittent steam, hot water or heat, and oil burners can be turned off and on as required. Coal is unsatisfactory and gas too expensive.

11. Any retail store owner or employee whose duties require that he be away from home in the evening or holidays is a real sure-fire prospect. He appreciates its convenience when he comes home late at night, and can be sold at work in the evening.

12. Theatres, Super-Service Stations, Filling Stations, Barber Shops, Drug Stores and Drink Stands all are real prospects, because their owners are usually prosperous and spend many hours away from home.

13. Present owner using oil heat or gas, because they appreciate their comfort and may be ready for replacement or may have relatives or friends who they think should have oil heat.

14. Institutions, Churches, Schools, etc., of any race or creed.

In addition to these classifications of prospects, the following types of prospects are classified according to occupations, with reasons for their acceptance:

Special Groups

A Banker, because it is a good investment.

A Doctor and Dentist, because they appreciate the convenience and its health value.

A Bachelor, because he is frequently away from his home and must depend upon servants for furnace care.

A Widow or Spinster, because she cannot afford to risk her health and comfort by shoveling coal and ashes.

A Business Man, because he can readily appreciate the value of oil heat and its savings of labor, dirt, drudgery, painting, housecleaning and family health.

A Lawyer, because his time is valuable. Many of his evenings and night hours are spent at work either at the office or in his library.

A Clerk or Department Head, because their wives appreciate the social distinction which automatic oil heat imparts.

A Mechanic, because he is machinery-minded.

A Railroader, traveling or local salesman, because their duties call them away from home a great deal and do not wish to burden their wives or mothers with the drudgery of fighting coal and ashes.

A Clergyman, because it is below his dignity to fire a furnace, and his congregation can be induced to make the expenditure.

New Ann Arbor Dealer Sells Many Lines

(Concluded from Page 1, Column 2)

iar, for he had been graduated from the University of Michigan in 1907. He didn't know the people, but he did know where to look for them, and soon he began to sell to new apartment buildings.

While lining up these apartment owners, he discovered something. His customers also wanted electric refrigeration. So he added the General Electric refrigerator line to his business, and began selling both products at once to his prospects.

Incinerators Wanted

He found, also, that the sale of an oil burner created a market for an incinerator. The first prospect he sold complained that he had no place to put his garbage any more. Incinerators then joined the ranks of French Home Equipment.

One is sold with every oil burner now; and if you don't believe that sidelines — even incinerators — are "gravy" in a dealer's profits, a glance at Mr. French's books will convince.

Within the first week he began talking water coolers to a broker. The latter countered with a demand for something that would purify the air in his stock-ticker room. French produced it—an Electrovent commercial ventilating fan. The profits from sales of this one item have been enough to pay the rent on his shop!

Oil burner users, he discovered, soon became completely sold on oil heat. Not only did they provide him gratuitously with new prospects (already half sold), but they came around asking for other oil-burning appliances. A utility heater, for garages and extra space, is now one of his best sellers.

Reading Lamps

Thus the ball has kept rolling. Michigan students wanted better reading lamps, so he offered them the Brady Daylite lamp. These same students wanted a low-priced radio, and he began marketing the Jackson Bell set. Oil burners and electric refrigerators are still his two headliners, and the articles he pushes. The sidelines simply sell themselves.

"Oil burners," says Mr. French, "are meat for specialty salesmen. Formerly they were marketed by plumbers, who are notoriously poor salesmen. A man who has been trained in some fast, competitive game like electric refrigeration, knows how to bring his candle from underneath a bushel, and can sell oil burners so fast that his so-called competitors will think he's giving them away.

"We like to do business with our friends, and the dealer who invades the heating field may find that fact to be his most serious obstacle. That has been my experience, at any rate. But it really isn't much of a job to convince your prospects that you know more about oil heating than their pet plumber—and you will, too, before you finish your factory sales and service schooling."

In his efforts to round up all the prospects available and to encompass all possible territory, Mr. French has established what he calls "B" dealers in the neighboring communities of Milan, Manchester, Chelsea, Saline and Ypsilanti.

These "B" dealers are men with considerable standing already in their respective towns. They have reputable, established shops, and command community confidence. Combing their clientele for prospects, they pave the way for sales which Mr. French closes. After the sale, the "B" dealers handle the service. For this they get liberal commissions.

"It's surprising how many prospects there are in Ann Arbor for oil burners, refrigerators and other appliances which bring comfort to the home," says Mr. French. "A high grade of people live in a college town. Profesors may be underpaid, but they demand and get creature comforts."

Home Equipment Field Ready, Waiting

(Concluded from Page 1, Column 5)

also keep this sales force on a productive basis.

The hundreds of valuable contacts which the salesman has established through his electric refrigerator installations will prove extremely easy to develop into oil burner sales.

The lack of volume sales on oil burners has been due principally to the type of dealers through whom they were originally sold, and partly due to the fact that the manufacturer expected his dealers to do more or less of an assembly job in the field.

Oil burners in the past were considered an engineering installation job, and the manufacturer chose his dealers from a line of business that was better equipped to do a heating construction job than one of specialty selling.

Sixty-five per cent of all the oil burners that have been sold in the past have been the result of satisfied customers making the sale for the dealer to a relative or friend.

I am rather inclined to believe that oil burners have sold themselves, and that in the past year or more some definite gains have been made by one or two of the direct selling factory branch oil burner manufacturers, where the same selling methods are being employed that have been so successful in other lines of business.

We are sitting on top of a tremendous demand for home comfort equipment. The oil burner has had the benefit of years of substantial growth and satisfactory performance record, and will be one of the first to make a tremendous growth.

Dual Merchandise Staffs Present Problems

(Concluded from Page 1, Column 1)

Oil burners on the demonstration floor should be segregated from the electric refrigeration equipment. One product will detract attention from the other, if the two are displayed together indiscriminately. Customers seldom buy both at the same time, and diversion of attention during a sales talk is never good business.

The experience of the writer with salesmen whose organization was handling both refrigeration and oil burners has been that certain men became naturally interested in either refrigeration or oil burners.

Public Utilities See Value of Oil Burner

By F. H. Duffield,
Silent Automatic Corp.

Public utilities and power companies all over the country are rapidly arriving at a full realization of the fast-growing importance of oil burners in boosting the consumption of electricity.

In the early days of the oil burner industry, as in the beginning of electrical refrigeration, and the introduction of vacuum cleaners, washing machines, etc., consumption of electricity was, of course, not materially increased by the installation of oil burners. But as the oil burner idea "caught on" and many large companies began manufacturing and installing them by the thousands each year, the power companies began to reap a real harvest in increased profits.

That current consumption by oil burners is an important item in the power company's business is demonstrated by figures compiled a few years ago in five large cities—New York, Philadelphia, Detroit, Kansas City and Minneapolis. In New York the average yearly consumption of electricity by each oil burner was 329 kilowatt hours; in Philadelphia, 424 kilowatt hours; in Detroit, 258; in Kansas City, 194; and in Minneapolis, 384.

Sales Increase

When these figures were compiled, the number of oil burners in use in any of these five cities was comparatively low. Sales of oil burners have mounted amazingly within the past three or four years, however. A total of nearly 600,000 burners of all makes are in use the country over.

Multiply this figure by an average yearly kilowatt-hour consumption of from 194 to 424 per burner—and the increase in electrical consumption brought about by the oil burner industry becomes impressive.

A number of public utilities and power companies are today cashing in not only on the increased consumption of electricity, but also on the actual sales of the oil burners.

Utilities Active

Some of them are concentrating on one make of burner, while others prefer to offer their customers a choice of two or more leading makes. Still others stick to actively selling the "idea" of oil heat, as a means of increasing current consumption. This is done by advertising, personal recommendation, and actual display of one or more makes of burners.

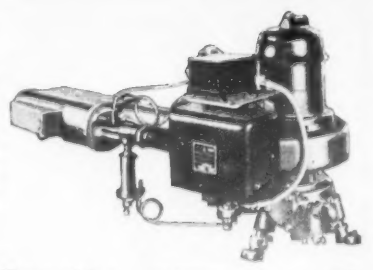
Power companies which sell burners do not in all cases install and service them. Often the power company will arrange for installation and service either with the manufacturer's branch or agent, or with a local plumber and heating man. This is in many cases the most satisfactory method.

Investigate These

Profit Builders

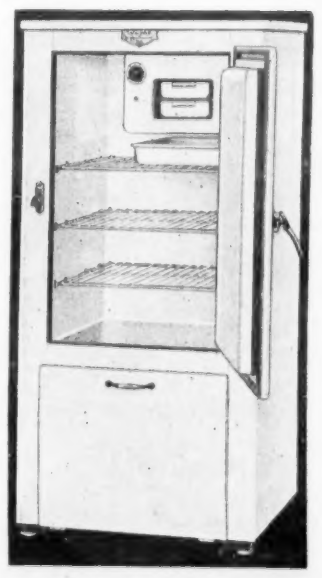
Here is your opportunity to handle two allied lines that will keep profits rolling in the year 'round

Made by WAYNE—both of these lines have made profits and built reputations for the dealers handling them.



Heats with a Slow Lazy Flame

WAYNE Economy Oil Burners are built to give service—not to require it. Amazingly simple in design—there is only one moving shaft. There are no belts—nor cams—nor carburetors—nor floats—nor combustion pots in the WAYNE



Send for Complete Information on this Line

Write us today for the full details of this line of Heat Proof Electric Refrigerators and Economy Oil Burners, and the selling plan behind it. We will send you complete information about the products—the sales plan, and the profit possibilities they offer you

The Wayne Home Equipment Company
Glasgow Street, Fort Wayne, Indiana

WAYNE
ELECTRICAL REFRIGERATOR | OIL BURNERS

WRITE US *TODAY for* FULL DETAILS

Survey of Dealers Shows Balance Difficult

By J. E. Bullard

RECENTLY I made a survey of oil burner selling by refrigeration dealers and plumbers, including interviews with dealers, plumbers and salesmen. The survey indicated that electric refrigerator dealers who are selling oil burners give too little attention to service, while the plumber and the heating contractor is giving comparatively little attention to selling.

The man who is exceptionally good at selling refrigeration, the survey showed, is not as good at selling oil burners, radios or anything else, unless he is an exceptional man.

Austin D. MacRae, of Concord, Mass., has a relatively small sales territory, and sells oil burners, electric refrigeration, gas appliances and compressed gas. He has found it better to have each of his four salesmen specialize. Each salesman, of course, attempts to sell more than his specialty, but there is one man who specializes on oil burners, one who specializes on electric refrigeration, one on compressed gas and one on city gas appliances.

Service Important

The servicing of oil burners is of greater importance than the servicing of refrigerators, according to the men I interviewed. Oil burners can do a great deal of damage if something goes wrong, and the service man is not on the job at once. If the burner smokes, it will soon cause several dollars' worth of damage in the house. Some oil burner users I know have switched to coal or city gas because of the damage done by the first burner they were using.

An example of what can happen if the service is not of the best is that of a fine residence in which a burner was installed a number of years ago. A painter was painting the interior and hanging new wall paper at the time. The job was nearly complete when the oil burner went wrong. The service man was slow in getting on the job, with the result that the entire house was smoked up. The painting job had to be done all over again and new wall paper hung. Had the service man been quick, there would have been a correspondingly low smoke damage.

Successful Method

The Natick Heating and Plumbing Co., in Natick, Mass., has been selling oil burners for the past nine years, and has been selling them in recent years on the strength of the service rendered. This company gives a year of free service with each new installation, provided no one tampers with the burner.

When a burner is installed, a typewritten notice is posted near the heating plant. This gives four telephone numbers to call in case of emergency. The day call is the office of the company. The first night call is the residence telephone number of the manager of the oil burner department, who also acts as head service man. The second call is that of his assistant, while the third call is the residence of the president of the company.

Each emergency service call is treated in exactly the same manner that a fire department treats a fire alarm call. The service man rushes to his automobile and drives just as fast as he can under the circumstances to the building in which the trouble is experienced.

This company has found that this sort of service helps to sell oil burners; and though it does not employ even one full-time salesman, it is doing a good oil burner business. The oil burner users are acting as salesmen.

In addition to this service, the company sells the idea to each oil burner user of having the boiler and burner thoroughly cleaned each summer. Before any oil burner goes into service in the fall it is in perfect condition. This results in very few emergency service calls, and means a great deal of satisfaction to the customers.

The average plumbing and heating concern appears to be well equipped for rendering good service. Therefore, when the refrigeration dealer is considering the sale of oil burners, it may be well to hook up with a plumbing and heating outfit which perhaps is already selling burners, but has no real sales organization. Co-operation of the two organizations will result in a sales and upkeep service that cannot be beaten.

In training salesmen, the men I interviewed found it good practice to give them a thorough training on one thing at a time. If they are taken on during the refrigeration season they are trained to sell refrigeration. If they are taken on during the oil burner season they are trained to sell oil burners. At this time also, it is usually good policy to give the refrigeration salesmen the oil burner training.

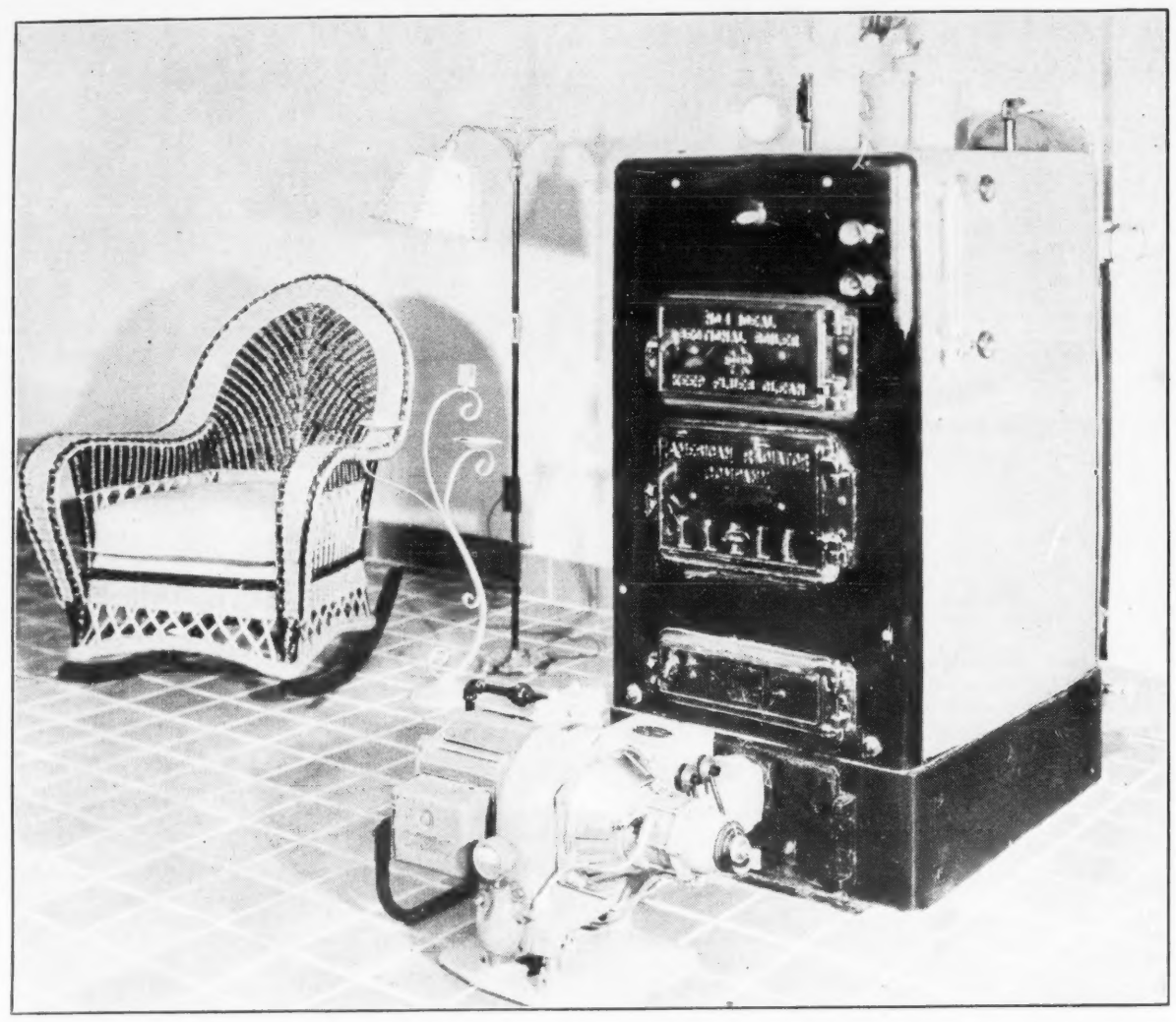
Salesmen Differ

It will be found that the refrigeration salesmen in some cases will continue to sell more refrigerators, even out of season, than they do oil burners. On the other hand, some of those who have not done especially well with refrigeration will become excellent oil burner salesmen.

The reason for this, as explained by a salesman, is that some men can become a great deal more enthusiastic over one than the other. The person who has never had very much to do with heating plants does not appreciate the value of an oil burner to the degree that one who has taken care of coal heated plants does.

Likewise, the man who has had to go down to a cash and carry station every day and bring back a cake of ice will become much more enthusiastic about electric refrigeration than one who has not.

A Den For Father



With the advent of oil heat has appeared the modernized basement. Gone are the dirt, the rusty ash-cans, coal bins, the old papers, and the trash of the old-fashioned cellar. In its place have come the billiard room, the children's playroom, the home-talent "little theatre," and a den where father may retreat when bridge clubs are in session. Above is pictured a Williams Oil-O-Matic installation in the attractive surroundings of the new-era basement.

'Good Combination,' Says A. B. C. Executive

Chicago, Ill.—"We have always thought that refrigeration and oil heat were a good sales combination," says M. M. Hirsch, vice-president of the Automatic Burner Corp. of this city. "Since the selling season of these two items are in different times of the year, the same sales organization, with very little more overhead, can very profitably handle both items.

"The peak selling season of the oil burner is during the months of July, August, September, October and November, although burners are being sold in the so-called 'off months' more and more each year."

Since 1920 the Automatic Burner Co. has been manufacturing rotary domestic oil burners, and now has a dealer organization five hundred strong. Factory sales and service departments are maintained to assist these dealers. Sales helps, such as direct mail advertising matter, are furnished whenever possible.

"We have a tremendous number of hardware dealers who also handle mechanical refrigeration," says Mr. Hirsch, "and our experience with these men is that pushing one product has increased sales of the other."

DEALERS WELCOME SUPER ICE MAN REFRIGERATOR

Hartford, Conn.—With open arms Super Automatic Oil Heater dealers have welcomed the new Super Ice Man, according to H. B. Roberts, of the Super Oil Heater Sales Co. The addition of this electric refrigerator to the line of oil heaters already being sold by these dealers gives them a good year-round business.

For seven years the Super organization has been making and marketing oil burners. During that time, especially during the last few years, there has been a growing realization on the part of company officials that another line of specialty merchandise was needed to balance the irregularities of the demand for oil burners.

The Super Ice Man, which is made in just three sizes, with all-porcelain cabinets by Seeger, is the solution brought forward by the Hartford concern for the problems of uneven sales.

BOXED UNIT

Worcester, Mass.—"It isn't even necessary to put out your coal fire when installing a Fowler," advertises the Fowler Oil Burner Co., Inc., of Worcester.

This oil burner is set up in a lacquered metal box which can be placed inside or outside the heater, or in any position desired by the customer. The patented nozzle is attached to the fire door of the heater. Just two lines carrying oil and air, and a wire for the spark, are run from the box to the fire door.

RANGE BURNERS SELL WELL, DECLARES J. H. RUTH

Worcester, Mass.—Dealers in electric refrigeration who are looking about for an additional line to market may be more interested in oil heating units for parlors and kitchen ranges than for the larger domestic household heating types, believes John H. Ruth, vice-president and general manager of the Fowler Oil Burner Co. His concern manufactures both types of burners.

"The range burner," says Mr. Ruth, "has been a tremendous seller in New England during the past few years. The remainder of the United States and Canada offer almost virgin territory for the sale of this product."

A new principle in designing range burners has been followed by Fowler engineers, according to Mr. Ruth. Instead of several loose cylinders fitting into individual grooves, all cylinders are welded together into a single unit that fits instantly on a grooveless base.

Air is taken in at the sides through graduated air ports, instead of through the base, keeping the flame high off the oil in the base itself. This design minimizes carbon formation, eliminates varying draft conditions, and allows the use of low grade fuel oil.

Berghoff Analyzes Actual Sales Cases

The following 21 cases represent actual orders received during the month of December by various Wayne oil burner dealers scattered over the country. These orders literally walked into the shop. They resulted more from a desire on the part of a consumer to remedy a situation than from the sales effort of a concern. John A. Berghoff, general manager of the Wayne Home Equipment Co., Fort Wayne, Indiana, compiled this analysis for refrigeration dealers who are considering the addition of a line of oil burners, and who want to know whence their customers will come.

Case 1. Prospect had trouble with his heating plant in the coldest weather. After a long siege of such weather, he bought an oil burner, because the coal furnace had required attention almost hourly during the cold period, and his wife was unable to stand the physical strain.

Case 2. Heating plant gave out in the middle of the winter. It had to be replaced. While purchasing a new plant, the prospect decided to complete the job for all time by installing an oil burner.

Case 3. Husband suddenly suffered a nervous breakdown. Wife was not strong enough to look after the furnace. Husband was unable to do so. The answer to the problem was, of course, an oil burner.

Anemic Wife

Case 4. Wife developed anemia, with attendant poor circulation. Constant, uniform heat was recommended by the physician. An oil burner was installed.

Case 5. Husband changed from office job to a traveling position. Wanted to save wife worry and work over heat.

Case 6. Husband died. Widow afraid to have anyone about to look after the furnace. Unable to do so herself.

Case 7. Prospect had trouble with an unusually bad supply of coal. Coal dealer refused to make adjustment. To get even with the coal dealer he bought an oil burner.

Case 8. Wife in maternity hospital. Husband wanted everything most comfortable for her and the new baby on their return. Especially interested in having house warm at night.

Old Folks Coming

Case 9. Old folks coming for Christmas and planned to remain until spring. Very old and feeble. Necessary to have house at 72 degrees at all times.

Case 10. Mother coming from warmer climate.

Case 11. A follow-up after a big party disclosed that one guest had spoken of nearly freezing to death while there. Wife was exasperated and fully determined never to be thus embarrassed again before guests.

Case 12. New car just bought. Desired to be gone week-ends. Bought an oil burner so there would be no worry about the house getting cold and pipes freezing, etc.

Case 13. Salesman found winter supply of coal just about out. Prospect had placed an order for more coal, but cancelled it and bought an oil burner. His excuse at the beginning of the season had been, "Have in my winter's fuel." If the salesman had not called, more coal would have been delivered.

Pneumonia

Case 14. Lengthy warm spell occurred with attendant overheating of homes. Arguments about health were reinforced by quite a number of pneumonia cases. Several oil burner sales made "to keep the homes cool," meaning, to avoid excessive high temperature.

Case 15. Prospect buying a new home. Had a burner in the old one. Had been thinking about burner for his new home. Bought.

Case 16. Moved in from another city. Accustomed to apartment heat furnished from central heating plant. Unfamiliar with coal furnaces.

Case 17. Inherited some property and bonds. The old excuse, "Could not afford it," thus removed.

Case 18. Had just collected an old debt long since thought worthless. Was spending amount on home improvements, and part went for an oil burner.

Case 19. Prospect just waiting for someone to call and ask him to buy.

Case 20. Prospect spends every evening in winter in shows. Always worried about whether damper of coal-burning furnace had been shut off. Bought oil burner to remove such worry.

Case 21. A fire caused by an overheated coal furnace suddenly changed the mind of a prospect, and he bought an oil burner.

The answer . . .
. . . to any heating problem

NEW LOW PRICES

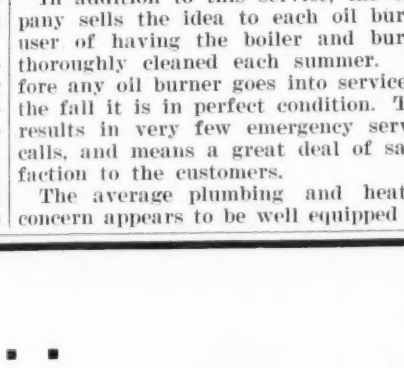
There is more than one reason why the International line of oil burners is the best; get the facts from a price standpoint and an efficiency standpoint. In other words, the customer is pleased and you surely will be.

Also . . . Special Line of Electric . . . Refrigerators

The International Refrigerators include the New Gyratory Compressor, a marvelous invention absolutely new to the refrigerator industry; described in August 27th issue, page six of Electric Refrigeration News.

You can't go wrong with the International

The Silent International Oil Burner



Built for bungalow or skyscraper

Made and guaranteed in St. Louis since 1920

WRITE TODAY FOR DEALERS OFFER

INTERNATIONAL OIL HEATING CO.

3800-10 Park Ave. Dept. RN. St. Louis, Mo.

OIL BURNER MANUFACTURERS' DIRECTORY

Ace Oil Burner Mfg. Co.
1140 Elliott Ave., Seattle, Wash.

Advance Machine Co.
4645 Ravenswood Ave., Chicago, Ill.

Advance Oil Burner Co.
1809 Oak, Kansas City, Mo.

Aford Mfg. Co., Inc.
Norfolk, Va.

Alliance Brass & Bronze Co.
Alliance, Ohio.

American Motor Products Corp.
South Bend, Ind.

American Nokol Co.
4200 Schubert Ave., Chicago, Ill.

American Turbine Oil Burner Co.
93 Brooklin, East Lynn, Mass.

American Warming & Ventilating Co.
Elmira, N. Y.

Amsler-Morton Co.
Fulton Bldg., Pittsburgh, Pa.

Andale Engineering Co.
Insurance Co. of N. A. Bldg.
Philadelphia, Pa.

Anthony Co.
(Kerosene, Etc.)
139 West Ave., Long Island City, N. Y.

Atlas Oil Burner Co.
5812 Broadway, Chicago, Ill.

Automatic Burner Corp.
1823 Carroll Ave., Chicago, Ill.

Automatic Temperature Control Co.
30 E. Logan St., Philadelphia, Pa.

Babcock & Wilcox Co.
85 Liberty St., New York, N. Y.

Baker Oil Burner Corp.
1926 Broadway, New York, N. Y.

Baker Steam Motor Car & Mfg. Co., Inc.
Barclay Bldg., Denver, Colo.

Ballard Oil Burning Equipment Co.
535 Commonwealth Ave., Boston, Mass.

Edw. P. Bates Co., Inc.
Syracuse, N. Y.

Baush Machine Tool Co.
Springfield, Mass.

Beckwith Co.
Dowagiac, Mich.

Otto Bernz Co., Inc.
(Kerosene)
15-35 Ashland St., Newark, N. J.

Berryman System of Oil Heating, Inc.
1300 W. Washington Blvd., Chicago, Ill.

W. N. Best Corp.
(Kerosene, Etc.)
293 5th Ave., New York, N. Y.

Bethlehem Steel Co.
Bethlehem, Pa.

Boston Machine Works Co.
Lynn, Mass.

Briggs Engineering Co., Inc.
225 24th St., Brooklyn, N. Y.

Bunting Iron Works
Berkeley, Calif.

Caloroil Burner Corp.
225 W. 34th St., New York, N. Y.

Campbell Machine Co.
2845 Harriet Ave., Minneapolis, Minn.

Cardiff & Co.
Yakima, Wash.

Carlson Bros. Tool & Machine Co.
15 "B" St., Boston, Mass.

Cary & Co.
28 N. 2nd St., Minneapolis, Minn.

Century Engineering Corp.
Cedar Rapids, Iowa

Chalmers Oil Burner Co.
1234 Central Ave., Minneapolis, Minn.

Chicago Flexible Shaft Co.
(Industrial)
1124 So. Central Ave., Chicago, Ill.

Clayton & Lambert Mfg. Co.
French Rd., opp. the Airport,
Detroit, Mich.

Cleveland Steel Products Corp.
7306 Madison Ave., Cleveland, Ohio

Coen Co., Inc.
112 Market, San Francisco, Cal.

Combination Boiler Co.
Benton Harbor, Mich.

Combustion Equipment Co.
(Oil cracking still recirculation & recuperation equipment.)
1820 Cherry, Kansas City, Mo.

Combustion Fuel Oil Burner Co.
8 Keefe Ave., Milwaukee, Wis.

Cope-Swift Co., Inc.
247 McDougall Ave., Detroit, Mich.

Cox & Sons Co.
(Industrial)
West Bridgeton, N. J.

Crown Oil Burner Co.
5720 W. Madison St., Chicago, Ill.

Crystal Oil Burner Corp.
1440 Broadway, New York, N. Y.

Davis Iron Works
Stockton, Cal.

Davison Gas & Oil Burner Co.
(Kerosene, oven, boiler, domestic use, etc.)
2938-40 Smallman, Pittsburgh, Pa.

Dempsey Furnace Co., Inc.
25 West 45th St., New York, N. Y.

Denver Fire Clay Co.
1746 Champa, Denver, Colo.

Dongan Electric Mfg. Co.
Franklin & McDougall St., Detroit, Mich.

Dust Sprayer Mfg. Co.
1224 W. 9th, Kansas City, Mo.

Eimer & Amend
(Job Kerosene)
17 Battery Place, New York, N. Y.

Eisler Electric Corp.
754 S. 13th, Newark, N. J.

Electrol, Inc.
227 East 45th St., New York, N. Y.

Engineer Co.
(Power Plant & Industrial)
17 Battery Place, New York, N. Y.

Enterprise Oil Burner Co.
2902 19th St., San Francisco, Calif.

Fess System Co.
220 Natoma, San Francisco, Calif.

Alfred Fisher Furnaces, Inc.
762 W. Adams, Chicago, Ill.

Flinn & Dreffein Co.
433 S. Dearborn, Chicago, Ill.

Fluid Heat Corp.
2637 Greenmount Ave., Baltimore, Md.

Foundry Equipment Co.
1831 Columbus Rd., Cleveland, Ohio

Fowler Oil Burner Co.
19 Union St., Worcester, Mass.

French Rotary Oil Burner Co.
Sebastopol, Calif.

Gaso Pump & Burner Mfg. Co.
Tulsa, Okla.

Gearheart Oil Burner Co.
Fresno, Calif.

General Heating Corp. of America
19 Madison Ave., New York, N. Y.

General Iron Works Co.
Front & Harriet, Cincinnati, Ohio

Gilbert & Barker Mfg. Co.
(Combination Gas & Oil Burners)
Springfield, Mass.

Gill Oil Burner Co.
5820 N. Clark, Chicago, Ill.

Gloria Light Co.
112 N. May, Chicago, Ill.

Goudie Oil Burner Co.
5820 N. Clark, Chicago, Ill.

Grant Home Heater Corp.
127 Montgomery St., Jersey City, N. J.

Griswold Oil Burner Co.
4007 N. Union St., Griswold, Iowa

Gulf Oil Burner Co.
Dept. C-1, Philadelphia, Pa.

George J. Hagan Co.
Cham. of Com. Bldg., Pittsburgh, Pa.

Hammel Oil Burner Co.
947 S. Main, Los Angeles, Calif.

Hammel Oil Burning Equipment Co., Inc.
409 Pine St., Providence, R. I.

Hardinge Bros., Inc.
1770 Bertoau Ave., Chicago, Ill.

Harms Bros. Mfg. Co.
1730 Thames, Baltimore, Md.

Hart Oil Burner Corp.
Peoria, Ill.

Hauck Mfg. Co.
(Kerosene)
129 10th St., Brooklyn, N. Y.

Heat Equipment Corp.
Lincoln, Nebr.

Frank Hennebohle
8101 So. Chicago Ave., Chicago, Ill.

E. A. Higgins Co.
(Cast iron, gravity type)
Omaha, Nebr.

Homer Oil Burner Co.
64 No. Washington St., Boston, Mass.

Jos. Honhorst Co.
(For Tar Heater)
1017-1019 W. 6th St., Cincinnati, Ohio

Willis W. Howe & Co
3030 McGee Traffic Way, Kansas City, Mo.

Ingle Mfg. Co.
San Diego, Calif.

International Boiler Works Co.
East Stroudsburg, Pa.

International Burners Corp.
225 W. 34th St., New York, N. Y.

International Heating Co.
3808 Park Ave., St. Louis, Mo.

T. P. Jarvis Mfg. Co.
275 Connecticut, San Francisco, Calif.

S. T. Johnson Co.
940-950 Arlington Ave., Oakland, Calif.

Johnson Fuel Oil Burners Co.
Bridgeport, Conn.

Johnston Brothers, Inc.
Ferrysburg, Mich.

Edmund Jost's Sons
81 Clay, Newark, N. J.

G. M. Kemp Mfg. Co.
(Gas burners, etc.)
405 E. Oliver St., Baltimore, Md.

Chas. F. Kenworthy, Inc.
175 Piedmont, Waterbury, Conn.

Kerrihard Co.
Red Oak, Iowa

Kewanee Boiler Corp.
Kewanee, Ill.

North Engineering Co.
1139 Tiffany St., New York, N. Y.

H. H. Kress
1711 Sansome St., Philadelphia, Pa.

Laco Oil Burner Co.
226 Union St., Griswold, Iowa

Lammert & Mann Co.
1759 No. Walnut, Chicago, Ill.

P. M. Lattner Mfg. Co.
(Industrial)
Cedar Rapids, Iowa

Lassen & Bissell, Inc.
252 Asylum St., Hartford, Conn.

Leahy Mfg. Co.
1804 E. 8th, Los Angeles, Calif.

Liberty Oil Burner Co., Inc.
1404 Sharp, Lincoln, Nebr.

B. P. Lientz & Co.
3409 E. 18th, Kansas City, Mo.

Littleford Bros.
460 E. Pearl St., Cincinnati, Ohio

Macleod Co.
(Kerosene)
2232 Bogen, Cincinnati, Ohio

Mahr Mfg. Co.
(Industrial)
1729 N. Second St., Minneapolis, Minn.

Malleable Iron Fittings Co.
21 Thatcher St., Brandford, Conn.

Marr Oil Heat Machine Corp.
98 S. 11th, Minneapolis, Minn.

Maxon Premix Burner Co.
(Combination Oil & Gas)
Muncie, Ind.

May Oil Burner Corp.
(Industrial & Domestic)
Winchester & Carey Sts., Baltimore, Md.

Mayflower Oil Burner Corp.
5002-04 Hudson Blvd., West New York, N. J.

McIlvaine Burner Corp.
Evanston, Ill.

Messer Co., Inc.
629-631 Central Ave., Newark, N. J.

Mid-West Oil Burner Mfg. Co.
3227 N. Carroll Ave., Chicago, Ill.

Alex Milburn Co.
1420 W. Baltimore, Baltimore, Md.

E. L. Miller Mfg. Co., Inc.
Climax Bldg., Kansas City, Mo.

Milwaukee Air Power Pump Co.
8 Keefe Ave., Milwaukee, Wis.

Monarch Eng. & Mfg. Co.
(Commercial & Gas)
1206 American Bldg., Baltimore, Md.

Morrissey Oil Burner Corp.
225 N. Michigan Ave., Chicago, Ill.

Morse Dry Dock & Repair Co.
(Also combination oil & gas)
Foot 56th St., Brooklyn, N. Y.

National Airoil Burner Co.
1327 W. Girard Ave., Philadelphia, Pa.

National Supply Co.
(Industrial)
412 Orleans, Chicago, Ill.

North American Mfg. Co.
(Kerosene, etc.)
2914 E. 75th St., Cleveland, Ohio

Norva Oil Burner Corp.
Norfolk, Va.

Nu-Way Corp.
Rock Island, Ill.

Oil-Elec-Tric Engineering Corp.
2937 Fourth Ave. So., Minneapolis, Minn.

Oliver Oil Burner Corp.
210 Chestnut St., St. Louis, Mo.

Wm. H. Pascoe Co.
1314 Belden Ave., Chicago, Ill.

Perfection Stove Co.
7609 Platt Ave., Cleveland, Ohio

Petroleum Fuel Engineering Co.
4032 Filbert, Philadelphia, Pa.

Petroleum Heat & Power Co.
834 Commonwealth Ave., Boston, Mass.

Phelps Mfg. Co.
Geneva, Ill.

Phoenix-Detroit Burner Corp.
Detroit, Mich.

J. E. Porter Corp.
Ottawa, Ill.

Porter Machine Co., Inc.
(Domestic & Power)
113-117 Plymouth St., Jersey City, N. J.

Preferred Oil Burners, Inc.
Peoria, Ill.

Progressive Foundry Works, Inc.
(Kerosene)
10 Mt. Read Blvd., Rochester, N. Y.

Progressive Machinery Co.
3132 Snelling Ave., Minneapolis, Minn.

Quaker Manufacturing Co.
215 N. Michigan Ave., Chicago, Ill.

Rajah Oil Burner Mfg. Co.
3817 Lincoln Ave., Chicago, Ill.

W. S. Ray Mfg. Co.
401 Bernal Ave., San Francisco, Calif.

Rayfield Mfg. Co.
21st & Rockwell, Chicago, Ill.

Remington Oil Engine Corp.
Keyport, N. J.

Remington-Keystone Mfg. Co.
Ridley Park, Pa.

Reynolds Portable Furnace Co.
811 S. 20th, Louisville, Ky.

Reif-Rexoil, Inc.
52 E. North St., Buffalo, N. Y.

W. S. Rockwell
(Kerosene, etc.)
50 Church, New York, N. Y.

Rotary Mfg. Co.
(Kerosene, etc.)
5718 Long Beach Ave., Los Angeles, Calif.

Ryan-Scully & Co.
(Kerosene, low pressure, etc.)
3709 Wissahickon Ave., Philadelphia, Pa.

Schermuly Mfg. Co.
Wichita, Kansas

Schurs Oil Burner Co.
(Down draft for kilns and boilers; kerosene, for cook stoves and ranges)
5330 Sante Fe, Los Angeles, Calif.

Schutte & Koerting Co.
(Mechanical systems)
1254 N. 12th, Philadelphia, Pa.

Security Stove & Mfg. Co.
17th & Oakland Ave., Kansas City, Mo.

Silent Automatic Corp.
12001 East Jefferson Ave., Detroit, Mich.

Silent Glow Oil Burners Corp.
(For ranges, hot water systems, garages and furnaces)
Hartford, Conn.

Silent Sioux Oil Burner Corp.
Orange City, Iowa

Simplex Oil Heating Corp.
30 Church, New York, N. Y.

L. P. Smith Foundry Co.
Fulton, N. Y.

Smokeless Oil Burner Co.
(Industrial)
Bucyrus, Ohio

Staples & Pfeiffer
(Oil burner)
528 Bryant St., San Francisco, Calif.

Strong, Carlisle & Hammond Co.
1395 W. 3rd St., Cleveland, Ohio

Summerheat Corp. of America
Dowagiac, Michigan

Super Oil Heator Co.
Pawtucket, R. I.

Surface Combustion Co., Inc.
2375 Dorr St., Toledo, Ohio

Sword & Kimber Co.
4861 Stenton Ave., Philadelphia, Pa.

Tabor Mfg. Co.
6225 Tacony, Philadelphia, Pa.

Taco Heaters, Inc.
342 Madison Ave., New York, N. Y.

Tate-Jones & Co., Inc.
(Kerosene, etc.)
Lettsdale, Pa.

Timken Detroit Co.
100 Clark Ave., Detroit, Mich.

Todd Shipyards Corp.
25 Broadway, New York, N. Y.

Union Electric Co.
Abilene, Kansas

Unique Mfg. Co., Inc.
(Coal oil, kerosene, gasoline)
223 W. Whiting St., Chicago, Ill.

United Engine Co.
Lansing, Mich.

L. R. Van Sant Co.
(Anti-syphon systems)
Peoria, Ill.

G. E. Vaughn Witt Co.
(Emeryville)
Oakland, Calif.

Volz Engineering Corp.
Long Beach, Cal.

Walker Mfg. Co.
St. Joseph, Mo.

Walker Oil Burner Co.
4133 Olive St., St. Louis, Mo.

Wayne Home Equipment Co.
Fort Wayne, Ind.

Webster Engineering Co.
Div. of Surface Combustion Co.
Tulsa, Okla.

Wilgus Mfg. Co.
1722 E. 16th, Los Angeles, Calif.

Williams Oil-O-Matic Heating Corp.
Bloomington, Ill.

Winslow Boiler & Engineering Co.
844 Rush, Chicago, Ill.

Worthington Oil Burner Co.
3920 E. 19th St., Kansas City, Mo.

York Oil Burner Co., Inc.
York, Pa.

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